

THE

NEW YORK

DENTAL RECORDER,

DEVOTED TO THE THEORY AND PRACTICE OF

SURGICAL, MEDICAL AND MECHANICAL DENTISTRY.

EDITED BY

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VOLUME VII.
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NEW YORK:

PRINTED BY GROSSMAN & SON, 59 ANN STREET.

1853.

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NEW YORK DENTAL RECORDER.

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Vol. VII.

OCTOBER, 1852.

No. I.

TREATMENT OF EXPOSED DENTAL NERVES BY HULLIHEN'S OPERATION.

Read before the American Society of Dental Surgeons, Aug. 4th, 1852.

BY C. O. CONE, M. D., BALTIMORE.

Mr. President and Gentlemen : Fellows of the American Society of Dental Surgeons.—

The preservation of the vitality of the nervous pulp of a tooth, when exposed by the removal of its bony covering, has been a subject on which much thought has been bestowed, by members of the profession, and its accomplishment the subject of anxious research and experiment.

I now beg the attention of the association to a description and a report of cases, of an operation, founded on surgical principles ; and which will, under favorable circumstances, and when judiciously and skillfully performed, preserve the vitality of dental nerves when deprived of their osseous protection.

I present this operation to the consideration of this association, as the discovery of one of its members, and of whom, it is not necessary to say more, than, that his modesty equals his talent and skill.

In the year 1848, during a conversation held with Dr. Hullihen in relation to the treatment of exposed dental nerves ; he expressed an unwillingness to have his previous opinion published, and declined reporting his experience in the treatment of exposed dental nerves, intimating at the same time, that he was engaged in making some experiments and observations in relation to this feature of dental practice.

During the winter of 1850 and 51, Dr. Hullihen expressed to me by letter, his confidence in the result of his experiments, and that a dental nerve when exposed by caries or otherwise, could be so treated by surgical means, under favorable conditions, as to secure the vitality of this tissue.

Although the operation was briefly described at the last named period

I did not hazard the operation until after Dr. Hullihen made a visit to Baltimore, which was during the latter part of the month of August, 1851. At this time he minutely described his method of operating, and the results of his experience. The first case which presented itself after this, was treated by the operation, and the result was such that in all cases in practice since that time, when it has been deemed advisable, the operation has been resorted to. A careful record of all these cases was kept, and is now offered to your consideration as a part of this paper.

With the evidence of these cases, proving the value of the operation, I felt that for many reasons the discovery should be placed before the profession, and accordingly addressed the following letter to Dr. Hullihen :

No. 38 North Charles Street,
BALTIMORE, July 3rd, 1852.

S. P. HULLIHEN, M. D.—Dear Sir : Having been made, by your confidence, &c., a party in testing in my practice the value and efficiency of your method of treating dental nerves when exposed, renders me anxious that the operation which is so important in my experience to both the patient and practitioner, should be brought before the profession, and that too, in such a manner as shall secure to the profession its benefits, and, as far as possible, protect the operation from abusive and injudicious practice.

To secure these ends, I look to you, feeling that the most ample experience is to be found where the operation originated, and that the most reliable judgment is to be obtained from you, who instituted the practice, studied the operation and marked its results, and now merits the reward of its discovery. With these feelings and views, and a recollection of your professional devotion and liberality, I propose the following queries, soliciting your answer, namely :

- 1st. A history of the origin of your operation for the treatment of exposed dental nerves.
- 2nd. A detailed description of the operation,—the cautions to be observed in the performance of the same, and the instruments employed ?
- 3rd. The symptoms attending and following the operation ?
- 4th. Indications and counter-indications for this operation ?
- 5th. Relative success and failure of the operation in general ; and in different classes of teeth in the same mouth and at different ages.

6th. Pathological changes dependent on, and effected by the operation, or the philosophy of the operation.

Respectfully yours, &c., C. O. CONE.

To this letter Dr. Hullihen replied as follows:

WHEELING, July 9th, 1852.

C. O. CONE, M. D.—Dear Sir: In answer to your very complimentary letter of the 3rd inst. I beg leave to reply to your several questions in the order in which they are proposed.

1st. The history of the origin of the operations to which you refer, is briefly this. In 1845, I was called upon to plug a molar tooth for a lady, in which the nerve was very much exposed, and under circumstances that made it impracticable at that time to attempt the destruction of the nerve in the usual way. I therefore drilled a hole into the nerve-cavity of the tooth with the view of permitting the matter to escape, should the nerve suppurate, (a process I felt sure would take place very speedily,) and then plugged the tooth without any reference to the pressure that the plug might make upon the nerve. It was observed both by the lady and myself, that the insertion of the plug did not occasion the slightest pain. In 1846, the lady again called to have her mouth prepared for a whole upper set of artificial teeth. She informed me that the tooth which I had plugged for her, fifteen months before, had never caused her the slightest pain or uneasiness. Upon extracting the tooth I found the fangs in a perfectly healthy condition. On breaking the tooth, I found the nerve somewhat diminished in size, but in all other respects in a healthy state. The hole which I had drilled into the cavity was filling up with an osseous deposit at both ends; $\frac{2}{3}$ more at the end next the nerve than that next the gum. There was likewise some appearance of an osseous deposit at the bottom of the carious cavity.

This case immediately opened the way to a number of experiments, tending, if possible, to discover the best course of treatment in all cases where the nerve had become exposed, and where it was desirable at the same time to plug the tooth. These experiments resulted in the adoption of a very simple, and almost painless operation, by which any tooth in the mouth can be plugged, however young the patient, or however much the nerve may be exposed, and that without destroying the nerve, or protecting it from the pressure of the plug, causing but little, if any pain to the patient during the operation, and without endangering any painful condition of the tooth to arise afterwards, or any disco-

loration to take place in it, more than is common to teeth that are plugged, and that too, where the nerve is in no way exposed.

2d. The operation consists in making a hole through the gum, the outer edge of the alveolar process, and root of the tooth into the nerve cavity, and then in opening the blood vessels of the nerve. The hole should be made of about the calibre of the nerve, at the point operated upon. If the drill employed be too large, there will be a difficulty in determining the exact moment when the nerve is reached. If too small, in obtaining the necessary discharge of blood. The drill should be spear-shaped, one cutting edge longer than the other; spring tempered, and having a small neck. Spear-shaped, because the point is more easily located, at the very place desired; one cutting edge longer than the other, because such a shaped drill gives indication of its approach to the nerve-cavity, by catching in it before it breaks through into the cavity; spring tempered, because less likely to break; small necked, so as to permit the free escape of the cuttings. The operation may be commenced on either the incisors cuspidatus, or bicuspids, by pushing the drill through the gum down to the alveolar process,—about a line back from the edge of the process, and directly over the centre of the root of the tooth to be operated upon. Upon the molars, so that the hole will be freely opened upon the main body of the nerve. The drill is then driven forward by means of a very slack string and weak bow, until its near approach to the cavity is recognized by the catching sensation before mentioned. The drill and bow are now laid aside, and all the cuttings of the drill most certainly removed from the hole; then, with a drill rotated by the fingers, the hole may be opened into the cavity. The friction of the drill upon the gum will prevent all bleeding from it. The entrance of the drill into the nerve-cavity usually opens the blood vessels, which may at once be recognized by the color, (arterial blood) and by the freedom of the discharge. By pressing a lock of cotton down into the carious cavity; an oscillation may be seen in the hole through the gum. By pressing the tooth into the alveolar cell, the bleeding may be much increased, either of which indications (so far as the making of the opening into the nerve cavity is concerned) may be considered complete.

3d. The symptoms attending the operation, are first, of course, the prick of the drill upon passing it through the gum, then a momentary tenderness when the drill emerges from the alveolar process into the root; then a slight painful sensation as the drill nears the nerve-cavity, and, strange as it may appear, the pain occasioned by passing the drill

into the nerve cavity is never half so painful as the mere touching of the nerve through a carious cavity in a tooth. The symptoms after the operation are, first, a slight dull pain from a half to a minute in duration, after the blood begins to escape from the nerve-cavity. The insertion of a plug upon a nerve scarcely ever occasions the slightest uneasiness at the time of filling the carious cavity, nor afterwards, unless the opening made through the gum into the root becomes prematurely closed by the cuttings of the drill, or a clot of blood ; and in this event the pain is instantly relieved by freeing the opening. There is always more or less soreness of the gum after the operation, but never any soreness of the tooth. This soreness of the gum never causes it to become swelled, and it appears to be occasioned solely by the presence of the drill cuttings left in the hole, or from cuttings being pressed into the substance of the gum itself, from using a drill with too large a stem or neck. This kind of foreign matter often gives rise to a small pustule which forms around the hole made through the gum, and which of course will continue to exist, until the cuttings are thrown off by suppuration, or otherwise removed. Sometimes, but very rarely, a small red pimple shows itself in the opening made through the gum, which pimple, from its great vascularity, appears to arise from the ruptured blood vessels of the nerve. The slightest pressure upon it occasions a very pungent pain in the tooth. This little growth is readily destroyed by applying to it *Nitras Argenti*. One application is generally sufficient to effect a cure, but in the great majority of cases, where the operation has been properly performed, there is no soreness of the gum, nor even any appearance of the opening made through it, after the first week or ten days from the time the operation has been performed.

4th. The indications for performing the operations, are, in all cases, where the nerve has become fairly exposed ; particularly so, in the teeth of all young subjects, and where the pressure of a plug will likely provoke inflammation in the nerve by its close proximity to it. The counter indications are, where the nerve is more or less inflamed, in other words, where the tooth is aching, and where from the age of the patient, and appearance of the tooth, there is reason to believe that the smallness of the nerve is such that no fear of inflammation may be entertained from the insertion of a plug in the carious cavity.

5th. The success of the operation, when properly performed, so far as I have been able to form an opinion, may be said to be universal. Out of not less than five hundred times that I have performed the ope-

ration during the last six years, particularly so when performed in the manner I have just described, I have yet to meet with the first case where the tooth has ached, an abscess formed, or a tooth has become necrosed in consequence of the operation. But when the operation has been improperly done, such as performing it upon an aching tooth, or by making too small a hole to permit the necessary discharge of blood, or in suffering a proper sized hole to remain choaked with drill cuttings, or a clot of blood, or by breaking a drill in the nerve-cavity, or in carelessly pushing a portion of gold from the carious cavity into that of the nerve—in all such cases inflammation of the nerve was sure to ensue, causing toothache, oftentimes alveolar abscess, as well as total necrosis of the tooth.

6th. Your question respecting the pathological changes that are produced in the nerve of the tooth by the performance of the operation, I do not feel fully prepared at this time to answer. The most careful examination of many cases and at different periods after the operation has been performed, is the only reliable way of obtaining correct information upon this subject. This kind of investigation I have not had an opportunity to make, except to a limited extent; too limited to venture an opinion upon.

With many thanks for the interest you have taken in this little operation, and the value you have attached to it, by adopting it in your practice, and in kindly offering to lay it before the profession, with your own valuable and critical observations upon the same, believe me, dear sir,

Very respectfully yours, &c.,

S: P. HULLIHEN.

A NEW METHOD OF SUPPLYING ARTIFICIAL TEETH AND GUMS.

BY WM. M. HUNTER, DENTIST.

"Is there any thing whereof it may be said, see, this is new?"

(CONTINUED.)

ORDINARY ALLOY. Blocks may be made and soldered to the ordinary plate if the absorption is sufficient to require much gum, without any platina. Arrange the teeth on wax on the plate, fill out the desired outline of gum and apply plaster $\frac{1}{4}$ of an inch thick over the face of teeth, wax and cast. When hard, cut into sections (cutting between the ca-

nines and bicuspids), remove the wax from the plate and teeth, bind the sections of the plaster mould thus made to their places with a wire, oil its surface and that of the plate, fill in the space beneath the teeth with the base, wet at first, but towards the last as hard and dry as possible, and thoroughly compacted. Trim to the desired outline on the inside, oil the base, and fill the whole palatal space with investient, supporting the block on its lingual side. Remove the plaster mould and cut through the block with a very thin blade between the canines and bicuspids. Take the whole job off the plate, and set on a fire clay slab with investient, the edges of the teeth down; bring up the heat in a muffle to the melting point of pure gold. When cold, cover and gum with No. 3, gum and covering.

Another mode is to back the sections with a continuous strap (using only the lower pin,) fill in the base from the front, use covering and gum No. 3, and finish at one heat. When the blocks are placed upon the plate, the other pin is used to fasten the gold back, which is soldered to it and the platina half-back; neither of these backs need be very heavy, as soldering the two together gives great strength and stiffness. Very delicate block work can be made in this way, and it is applicable also, where a few teeth only are needed.

A very pretty method, where a section of two or four teeth (incisors) is needed and only a thin flange of gum, is to fit gum teeth into the space, unite by the lower platina with a continuous back, and unite the joint with gum No. 3. A tooth left ungummed by the manufacturer would be best for the purpose. The same may be applied to blocks for a full arch, remembering not to depend entirely upon platina backs.

The method I prefer for full arches on ordinary plate, is to take a ribbon of platina a little wider than the intended base, and of the length of the arch, cut it nearly through in five places, viz: between the front incisors, between the lateral incisors and canines, and between the front incisors, between the lateral incisors and canines, and between the bicuspids. Adapt it to the form of the alveolar ridge with a hammer and pliers, and swage on the plate along where the teeth are to be set.—Solder up the joints with pure gold, and proceed to back the teeth, &c. as before; making preparations for fastening, and removing the slip of platina from the gold plate before enveloping in the investient, when proceed as before.

When the teeth are arranged insert four platina tubes about one line

in diameter, two between the molars and two between the cuspidati and bicuspids and solder to the platina base. These are designed, after the teeth are finished, to be the means of fastening to the gold plate, either by riveting in the usual way, or by soldering pins to the gold plate passing up through the tubes, fastening with sulphur or wooden dowels.— By these methods we are enabled to readily remove the block and repair it should it meet with any accident, and also in case absorption should go on, to restrike the plate, or to lengthen the teeth. The rim should be put on the gold plate after the block is finished, it gives great additional strength and a beautiful finish.

MEMORANDA. In preparing material always grind dry, and the most scrupulous cleanliness should attend all of the manipulations. In all cases where heat is applied to an article in this system, it should be raised gradually from the bottom of the muffle and never run into a heat. Where it is desired to lengthen any of the teeth, either incisors or masticators, or to mend a broken tooth, it may be done with *covering*, properly colored with platina, cobalt or titanium.

In repairing a piece of work, wash it with great care, using a stiff brush and pulverized pumice stone. Bake over a slow fire to expel all moisture and wash again, when it will be ready for any new application of the enamel. Absorption, occurring after a case has been some time worn, by allowing the jaws to close nearer, causes the lower jaw to come forward and drive the upper set out of the mouth. By putting the covering on the grinding surface of the back teeth in sufficient quantities to make up the desired length, the co-apтation of the denture will be restored and with the original usefulness.

Any alloy containing copper or silver should not be used for solder or plate, if it is intended to fuse a gum over the lingual side of the teeth, as it will surely stain the gum. Simple platina backs alone, do not possess the requisite stiffness, and should always be covered on platina with the enamel, and on gold with another gold back. In backing the teeth, lap the backs or nearly join them up as far as the lower pin in the tooth, and higher if admissible, and in soldering be sure to have the joint so made *perfectly soldered*.

As the work on platina plate presents fewer difficulties to the tyro, it would be well to gain experience upon that kind of work, before attempting its application to gold bases. The proper tooth for this work is not yet in the market, but I think will be ere long. A tooth finished

at one heat by the manufacturer is best, although any tooth may be used that has been painted at a higher heat than the melting point of gold, being careful not to use any tooth in which gold may have been incorporated, as it will change color in the fire. A tooth with a natural shaped crown but thinner than the natural tooth, with the platina pins at a point that will allow of the back being covered without being clumsy, is wanted, and likewise a tooth resembling the natural tooth, except that the molars be made with one conical fang similar to a *dens sapientiae*.

REPLY TO DR. JOHN ALLEN'S VINDICATION.

At length we have John Allen's vindication (?) laid before the dental public; and so childish and contemptible an effusion I have never before seen; and as the writer says that he will "only notice the main points upon which my (his) calumniators have predicated their grounds of opposition," I will show that he has not even touched upon any of the main points charged upon him by me or my friends. The first main point which he has not noticed, is, that Dr. Brown described to him a piece of my work done as it is now: and that too, months before he had even entered his *caveat*, which recollect. is only a bar to applications for a patent for the same or similar inventions from any other quarter, in which case the patent will be given to him who proves priority. Even John Allen himself is not so reckless of his reputation as to hazard the assertion that I could not have proved priority as to the methods here-with described. Yet I do not wish it to be understood that I lay claim to originating the principle of Allen's patent; that was described by Delabarre and others, and which consists in uniting teeth to each other and to the plate by a fusible silicious cement, (and which was declared at sight to be all sufficient by the Miss. Valley Ass. of Dental Surgeons,) and is but a feeble imitation of what I had previously produced; and further declare that he had not the genius to accomplish even that end without the aid of a "dunder headed Dutchman," to use his own choice expression. In proof of which I need only to refer to the similarity between the "Steemer recipe" and that of the Letters patent, and to his own acknowledgement in his vindication, of having tried a compound made by Steemer; without referring to further documents which exist, a main point I think, in sustaining his patent.

I think him very impudent or very foolish at this time, to call upon the unfeudged noviciates of the Ohio School and sixty dentists, to prove that the patent mode is sufficient to stand the "powerful action of the

masseter muscles," for the purpose of controverting my original assertion that it was not. Failing in his first attempt at imitating what I had accomplished, he has again tried his imitative powers, and now claims as a part of his patent the soldering of the teeth to platina plates, and then covering the strap with gum!! No man in his common senses would ever dream of soldering the teeth to the plate, from reading the claim and specification of his patent, or elsewhere set forth by him or any of his friends. It is for FUSIBLE SILICIOUS CEMENT AND THAT ONLY.

Whenever Allen produces an article which will unite the teeth to each other and to the plate, without the aid of backings or other fastenings, then will he be entitled to some credit, and not till then. Whenever he sells a *patent right* for a mode of setting teeth in which backs are necessarily used and soldered to the plate, he is guilty of a fraud and liable for damages. In this case as in all other dealings with him, I say, "*caveat emptor.*"

He also attempts to show that my work is merely block-work soldered on. I like his impudence in the face of the fact that one of the specimens described to him was on platina plate, and the straps covered over with gum, and the only one exhibited by me at the "World's Fair," my other specimens having been left out either through the negligence or unfairness of those having them in charge. And farther, that he only got platina plate to *experiment with*, from learning that I was using it, not having taken all that was ordered for me. But the height of impudence (for which he stands pre-eminent) consists in his claim to a platina base as applied to gold plates; a claim which was made for me by Dr. Leslie at the meeting of the Miss. Valley Ass. when this matter was brought up, and it was reported by him to the Am. Journal of Dental Science.

I said, "a fracture once occurring, what are the means of repair that will prevent a recurrence of the evil?" and he forthwith accuses me of ignorance, and says that it is very easily repaired. True it may be repaired by again putting it through the fire, but it is just as liable to break as it was at first, the only means of strengthening being to add on more of the *cement*; whereas should a fracture occur in my work, I would strengthen by soldering on a stouter back, thereby "preventing a recurrence of the evil." I therefore, repeat that inquiry.

Now for a few more of the "main points" that he has not thought it necessary to answer.

I accused him of an attempt to bribe, and he has not answered it.

I accused him of surreptitiously obtaining a patent with a fraud upon the face of it, and he has not answered it.

I accused him of prevarication and disgraceful evasion before the American Society, and he has not answered it.

I accused him of having offered to pay for a gold medal to be awarded by a Society, and he has not answered it.

I accused him of wilful fraud in placing Brown's note in such juxtaposition, and he has not answered it.

I accused him of knowingly making a false claim when he claimed to have overcome shrinkage, and he has not answered it.

I accused him of having procured a formula from Chas. Steemer, which he at one time denied, but now has answered by publishing a certificate from Steemer, that he (Steemer) does not believe that Allen uses it.—And this too, after most positively stating that Steemer never knew *any thing* of the material except what he had learned from him.

I accused him of being an *ass*, and he *has* answered it.

The whole matter reminds me of a little story which I have heard, and which can be vouched for. Many years ago, Dr. Asinus called upon an eminent dentist of our acquaintance, but who shall be nameless, gathering items and any little things that might be picked up.—Among other things attracting his delighted vision was a *plate punch* such as is now in general use, but then was but little known in the west. An offer was made for it by Dr. A., which was refused, but the information given as to price and whence it might be obtained; but rail roads not being completed, telegraphs unknown, and the Am. Express Co. undreamt of, it did not suit our "fast man" to wait, so he requested the privilege of making a drawing, which was granted. So far good.—The right disposition was manifested by our eminent friend, but now for the sequel and to the point. A few months subsequent: a peddler of dental patents, secrets or what not, called on our eminent friend for the purpose of selling to him "De greatest instrument dat ever was made in de mechanical dentishty, de invention of de learned Dr. Asinus."—The instrument was a plate punch almost identical in outline with the one which the ingenious Dr. A. had made a drawing from. Comment is unnecessary.

In conclusion, I would state that I challenge John Allen to enter suit against me, or any person I may teach, or any person who may use my published formulas or modes, and furthermore, that I will show him work in the mouth of my patients if he wishes to prove that I am using

a method such as is herein or elsewhere described, that he may no longer say that he is only waiting for information of such fact to enter suit.

An evasive trickster I despise ; give me a man of his word, and I will admire him for at least one good trait, and Allen now has an opportunity to show whether he can lay claim to that quality, and at the same time keep up a semblance of justice towards those who have purchased of him PATENT RIGHTS.

WM. M. HUNTER.

Cincinnati, Sept. 20, 1852.

POISONOUS CHLOROFORM.

To the Editor of the Boston Medical and Surgical Journal :

SIR.—The numerous deaths which have recently taken place from the inhalation of chloroform, seem to require that I should state what I know upon this subject, without waiting for more extended researches which I have now in progress ; for a word in time may save human life, and I shall therefore present my views, even though some may think that I ought to wait until my work is completed to its full extent before publication. I have formerly been charged with dilatoriness in presenting my discoveries to the public, and wish to avoid a repetition of this accusation, even though my work, in its present state, is not so complete as would be required for scientific purposes.

I have long had a strong suspicion that the very sudden deaths resulting from the inhalation of chloroform, must have been produced by the presence of some poisonous compound of amyle, the hypothetical radical of Fusel oil, or the oil of whisky ; and I began a series of researches upon this subject several years ago, but was called off from my work by unexpected persecutions. This work I have resumed, and I will now state what facts and inductions I am able to lay before the public.

1st. When chloroform, and the alcoholic solution of it called chloric ether, was made from *pure* alcohol diluted with water, no fatal accidents took place from its judicious administration.

2d. When chloroform was made, as it now too frequently is, from common corn, rye, and potato whisky, deaths began to occur, even when the utmost care was taken in its administration.

3d. In the Chelsea case, where this kind of chloroform was probably contained in the alcoholic solution incorrectly called chloric ether, death

took place in a very sudden manner, and the post-mortem appearances of the subject indicated the usual effects of poisoning by chloroform.

From these data, it might justly be inferred that some poisonous matter exists in the cheap chloroform of commerce, and I suspected that it arose from the Fusel oil which exists in whisky. This opinion at my suggestion, was published by two of my friends, to put the public on their guard, and those gentlemen urgently advised that physicians and surgeons should return to the use of pure sulphuric ether (oxide of ethyle), as originally prescribed by me.

It is well known that I have always preferred my original anæsthetic agent to all the substitutes that have been proposed since; but still I have always been willing to give the proposed substitutes a fair trial, and did try them all, first upon myself, and then upon such of my pupils as felt willing to allow the experiment to be made upon them. I also in a measure compromised with that powerful anæsthetic, agent chloroform, by mixing small proportions of it, about one fourth or fifth part, with sulphuric ether, so as to concentrate the anæsthetic agent into a smaller bulk, and I have extensively used this preparation in the production of anæsthesia, and without producing any dangerous or even unpleasant symptoms in any case, but I always took care to ascertain that the chloroform used by me was pure.

Having, during the last month, succeeded in procuring some very pure Fusel oil (of whisky), I undertook the researches which have resulted in the conviction that it is this amyle compound that produces the poisonous matter of certain kinds of chloroform. When mixed with hyperchlorite of lime (bleaching powder) and water, in the same way as we prepare alcohol for the production and distillation of chloroform, I found that the mixture in the retort, after agitating and standing some time, became warm, indicating that a re-action was taking place between the Fusel oil and the hyperchlorite of lime.

After some hours the retort was placed in a water-bath and distillation was effected, the volatilized liquid being condensed by means of one of Liebeg's condensers. A clear colorless liquid came over, which was at once recognized as having the peculiar *odor of bad chloroform*. It is perhaps a *ter chloride of amyle*, but has not yet been submitted to analysis. It is so powerful that merely smelling of it makes one dizzy, and working over it made me so sick that I was obliged to go out of doors for fresh air several times during my operations on it. In order to make sure that the Fusel oil was all decomposed, I again mixed the product

of the distillation above mentioned with a new lot of bleaching powder, and water; and after three hours, with frequent agitation, it was again distilled, and gave what I regard as the pure unmixed poison. This I am now to test on such animals as have proved good ether subjects, and shall make report of my results in this Journal.

If my views are correct, it follows :—

1st. That all chloroform intended for *inhalation as an anæsthetic agent should be prepared from pure rectified alcohol*, to be diluted with water when used for distillation from hyperchlorite of lime.

2d. That no druggist should sell for anæsthetic uses any chloroform which is not known to have been properly prepared as above suggested.

3d. That the mixture of chloroform and alcohol, commercially known under the name of strong chloric ether, must be made with the same precautions as chloroform.

There is less danger of the existence of Fusel oil in sulphuric ethér, which is always made from strong rectified alcohol.

There is more danger of the existence of sulphurous acid in this liquid, and that is a dangerous poison, but it is one readily detected; and persons will object to inhaling ether containing it, on account of its well-known disagreeable odor of burning sulphur.

Fusel oil itself, according to the microscopic researches of my friend Dr. Henry C. Perkins, of Newburyport, appears to act as a poison. His experiments were suggested by an article published by Mr. Henry A. Hildreth, imputing the poisonous qualities of some kinds of chloroform to Fusel oil contained in it.

It is important, now that this Fusel oil has been introduced into medicine as a remedy in phthisis, that the profession should know that when it is inhaled it may produce fatal results, and that great caution is necessary in the use of so powerful an agent. Administered a few drops at a dose, by the stomach, it does no harm, but is undoubtedly useful in some forms of disease. Experience will soon show how far it is remedial in tuberculous diseases; and this remedy is in good hands at present—Dr. Morril Wyman and Dr. Perkins having engaged in the researches as to its medicinal use.

I annex a letter which I have just received from Dr. Perkins, deeming it an interesting contribution to physiological science.

Respectfully your ob't serv't, C. T. JACKSON, M. D.

Assayer to the State of Mass.

Boston, Sept. 1, 1852.

and to the city of Boston.

Newburyport, Aug. 27, 1852.

MY DEAR FRIEND,—Noticing, the other day, a paragraph in one of the papers, which attributed the evil effects of chloroform to the Fusel oil it contained, I tried an experiment upon a frog with a few drops of this oil dissolved in ether, and found that after inhaling it for a short time the same effects were observable under the microscope as appear when chloroform is used, viz., an *almost entire* suspension of the circulation in *all* the blood-vessels ramifying upon the web of his foot; there was, in fact, only a *very slight backward and forward* motion to be seen in *one single vessel*; in *all* the others the blood was *perfectly stagnant*. The frog was insensible for a much longer period than when the ether alone was used. He is now bright and ready for another experiment —to which I proceed.

I exposed him to the vapor of a few drops of Fusel oil dissolved in about a drachm of New England rum, for about six minutes, when he closed his eyelids and seemed under its influence. He was then placed upon the stand of the microscope, but not the slightest appearance of circulation was to be found in any of the vessels of the web; it was unusually pale and exsanguinous. He removed his foot twice or thrice from the stand, and gasped several times. I was now called away, and was absent about half an hour. Upon my return, the frog was found dead.

Several queries suggest themselves, which you will allow me to propose:—

- 1st. Is there any Fusel oil in sulphuric ether?
- 2d. Can the Fusel oil be removed from the chloroform?
- 3d. Would the vapor of New England rum, rot-gut whisky (which contains this oil), produce anaesthetic effects?
- 4th. In what other liquors is this oil found?
- 5th. Does it in small doses, as administered by our friend, Dr. M. Wyman, and as I am now trying it upon his recommendation, diminish the pulse and act as a direct sedative?

To the third and fifth queries I shall direct my attention. The others I leave for your investigation. Very truly your sincere friend,

H. C. PERKINS.

EAU DE BOTOT.

Some days since, a foreign gentleman called at our office with the following recipe, which he said had for many years enjoyed an exten-

sive celebrity on the European continent, as a remedy for diseased gums, unclean mouth, &c., &c., &c. He was very anxious that it should be within the knowledge of every dentist, that their patients might enjoy the invaluable benefits which it alone could impart. His price was only *two dollars*, so, thinking that we might assist the gentleman in his very benevolent efforts, we purchased the formula, and now present the same to the readers of the Recorder.

2 Gallons spirit of wine, 93 proof, in a stone or glass demijohn,
6 Drams Root Pyretra,
6 " Starr Aniseed,
8 " Benzoin, Gum,
4 " Cloves,
6 " Cinnamon,
2 " Cochineal,
4 " Garillac.

Powder all these well in a mortar; the Cochineal to a fine powder, it gives the color.

Put all these, when powdered, in the spirit, and shake well the mixture morning and evening, for at least fifteen days.

It should be exposed to the sun some time every day, to accelerate the infusion.

After fifteen days or more draw clear the liquor, and add to it—

4 Drams Essential Oil of Minth
4 " Cockelaria do.

Mix it well for three or four days more, and then filter the mixture through white blotting paper in a glass funnel.

The liquor is ready.

PRACTICAL APPLICATION OF CHOLIFORM.

A late number of the British and Foreign Medico Chirurgical Review, contains an able article on the "Practical Application of Anæsthesia," in which the employment of Chloroform and Ether in general surgery, midwifery, dental surgery, therapeutics and legal medicine are considered at some length, and citing the opinions and authority of the following writers upon the subject: J. Y. Simpson, M. D., F. R. S. E., of Edinburgh, Scotland; Walter Channing, M. D., of Cambridge, Mass; Thomas Mumeley, Esq., F. R. S. E., of London; E. F. Bouissou, of Paris; J. B. Flagg, M. D., Surgeon Dentist, Rhode Island; John Snow, M. D., London; James Miller, F. R. S. E., &c.; Francis Brodie Irnlach, Dentist, Edinburgh, and Par H. Chambert, Paris.

Few discoveries in medical science, have engaged within so short a space of time, so many able and distinguished advocates as are furnished in the above catalogue of distinguished names. And in the wide field of experiment to which this matter is brought, few are more likely to go through a more scorching ordeal. It is gratifying to know, however, that on the whole, a multiplicity of facts and statistics prove its exceeding utility in a variety of cases, and authorize its use beyond all question, in *such* cases.

But we cannot think, from our own experience and observation, that it is extensively called for in the ordinary practice of our profession. The advantages which it presents, even were there no danger in any case of a fatal termination, would scarcely balance the necessary trouble and time consumed in the administration. And especially as so many facilities in the way of dental instruments are supplied to our hands at the present time, for the extraction of teeth.

Within the last six months, three fatal cases have occurred in this section, from the use of chloroform, and *one* such case is as much as we should want in a life time. And we can but feel a painful sympathy for those under whose hands these fatal cases have occurred. Nor will it tend much to alleviate their sufferings to know that every previous case was successful.

We advise not to use chloroform at all for ordinary dental operations.—*Norwalk Ed.*



PROCEEDINGS OF THE ANNUAL MEETING OF THE SOCIETY OF DENTAL SURGEONS OF THE STATE OF NEW YORK.

The fifth annual meeting of the Society of Dental Surgeons of the State of New York, was held September 14th, at No. 2 Union Square.

The meeting was called to order by the first Vice Pres. J. G. Ambler, (in the absence of the President, Dr. C. C. Allen, who was detained by illness,) and the minutes of the previous annual meeting read. Minutes of the last meeting were also read and approved.

Dr. M. K. Bridges, who had been appointed to deliver the Annual Address, then rose, and stated that his health had been such during the past year, that he had not been able to prepare an address as he had designed to do, and begged to be excused.

The Society was then addressed by Mr. F. H. Clark upon the im-

portance of organization among dentists, and the great advantages which Societies, Colleges, and Libraries gave us over our fathers of the past generation. Dr. Clark's address was exceedingly entertaining and instructive, and at its close a vote of thanks was tendered him by the Society.

Dr. Bridges, Chairman of a Committee appointed upon the subject of "Irregularities of the Teeth," reported progress, and the Committee was reappointed for another year.

Dr. Burdell's resolution for reducing annual dues was laid over and afterwards withdrawn.

Mr. F. H. Clark's resolution to reduce the Executive Committee from five to three was adopted.

A resolution passed for refunding to members all monies which had been paid into the treasury for taking students under the original constitution, which required each member to pay to the society the sum of ten dollars for every student.

Afternoon session. 1st Vice President in the chair.

Dr. M. K. Bridges made a statement upon filling teeth after the new plan recently proposed by Dr. Hullihen of Wheeling, Va., giving the results of his practice, which, however, was unsatisfactory, as Dr. B. had but recently commenced practicing in this way.]

Castings, showing the reduction of irregular teeth in a very remarkable case, were at this stage of the proceedings, exhibited by J. G. Ambler. In this case the superior incisores were unusually prominent, and although the patient was 35 years of age, they were, after several months of constant pressure upon them, reduced to a natural position, and appeared firmer in their sockets some weeks after the operation was completed, than they had been for a long time previous to commencing it. A description of the case was promised for the Recorder.

B. Lord was appointed to deliver the address at the next annual meeting.

Evening session. The President, C. C. Allen, in the chair.

The treasurer, Dr. M. K. Bridges, then made his report, showing a flourishing condition of the finances.

L. Covell and B. Lord, were appointed to read essays before the society at the next two monthly meetings.

The following officers were chosen for the ensuing year.

H. Burdell, M. D., President; James Fowler and C. H. Stillwell, Vice Presidents; B. F. Maguire, Rec. Secretary; C. C. Allen, Cor.

Secretary; M. K. Bridges, Treasurer; S. A. Maine, H. D. Hall and T. H. Burras, Executive Committee; C. C. Allen, B. Lord and L. Covell, Examining Committee.

A motion was made to adjourn, when the retiring President, Dr. C. C. Allen, rose and returned thanks to the society for the uniform courtesy and indulgence with which he had been treated while acting as the presiding officer of the society, during the past year. He alluded to the object of the society at the time of its formation, which was *mutual improvement*, and stated that this object had, at times, been lost sight of, and attributed it to the presence, in the society, of two notorious rogues, who had prevented it from accomplishing all the good, and deriving all the benefit from the organization, which it was capable of imparting to its members. As he had always meant to be frank and open with the members, he should not hesitate to call these rogues by name, and publicly denounce them before the society. The first was *Self-Esteem*. This rogue, he said, had been in the Society since its organization, and had exercised great influence in preventing many members from improving themselves either in theory or practice. He was one that seemed to be peculiarly fond of the society of dentists; wherever two or three were gathered together, there was he amidst them, and with every individual under his influence, there was an end to improvement, for nothing could be more self-evident, than, that when a man knows everything he has nothing more to learn. Dr. Allen related an anecdote; he was stopping a short time in one of our provincial cities, and passing one day through the principal thoroughfare, his attention was drawn to a knot of sailors on the sidewalk; when, just as he was opposite them, without knowing who was the subject of conversation, he heard one exclaim,—“He’s just like Dr. S. (naming one of the dentists in the place, whom Dr. Allen knew,) he thinks he knows everything!” Too many of us, said Dr. A., are too well satisfied with the limited amount of knowledge and skill which we possess, too ready to give our opinion, and too slow to receive, weigh, and consider that of others. A very modest and very meritorious dentist had remarked to him, that when in New York, one of his principal amusements was to sit in the rooms of Jones, White & Co., and listen to the conversation of the dentists who congregated there. “I have seldom met with a set of men,” said he, “who seemed to be more self-complaisant and perfectly well satisfied with themselves.” He would leave it with the society to say how true this picture was of “the profession.”

The other rogue which he had met with in the society was *Indolence*, known by his inactivity, love of ease and unwillingness to make any exertion to promote the interests and usefulness of this society. It was his presence that had made the practical discussions in the society so tame and uninteresting ; it was he who had caused our clinics to fall through, and disappointed the society when it came together to listen to annual addresses, essays and dissertations. He had failed to perform his duties when placed upon important committees, and in every other situation where labor and self-sacrifice were demanded of him ; he was ever ready to accept office or honorary appointment, but never willing to perform the duties which its acceptance made incumbent upon him ; in short, he was always ready to put his hand to the plough, but continually looking back. Dr. Allen exhorted the society to expell these two rogues ; and warned the members that little good would come from the organization so long as these characters occupied so conspicuous a position among them.

At the close of Dr. A.'s. remarks, a vote of thanks was tendered to him for the fair and impartial manner in which he had presided over the society.

The President elect, then thanked the society for the honor conferred upon him, and invited the members to a social entertainment at his house, one week from that evening, which was accepted by the society.

The society then adjourned. B. F. MAGUIRE, *Rec. Sec.*

THE NEW IMPROVEMENT IN ARTIFICIAL GUMS.

In the present number we give the completion of Dr. Hunter's plan for manufacturing artificial gums, or uniting single teeth into blocks for an entire denture. We have not yet had an opportunity to test the merits of his system, or to compare it with that of Dr. Allen, his competitor.

We are indebted to Dr. Allen for a double set of teeth, which he has been kind enough to manufacture for us during his stay in our city. Since the first specimens of this style of work were exhibited in this city, about a year since, it has been greatly improved by Dr. Allen himself and several experienced tooth makers to whom he had imparted his formulas and mode of operation. When well done, it now constitutes the most beautiful, and, in some respects certainly, the most

perfect kind of artificial work that has ever been made. It now remains to be determined whether platina will be acceptable to our patients as a substitute for gold, and whether it will answer as good a purpose in practice. Also whether this kind of work can be made to stand in the mouth as well as block work or single gum teeth. Those dentists who have been using it in their practice for several months, and with whom we have had an opportunity of conversing, are very sanguine that it will supercede all other kinds of work, and be very generally adopted by the profession.

We have not taken any part in the controversy between Dr's. Hunter and Allen respecting the priority of invention, nor do we intend to until all the facts are laid before the public, except to publish communications from both sides. When of general interest to our readers in the ordinary issue, but when too long or too personal if we give it in an extra our subscribers will not complain, as they can read it or not according as they feel interested in the subject. At present there seems to be a probability that Dr. Allen's patent will be contested before the courts. Such a trial will draw out all the testimony on both sides, and the public will then be able to decide the question of priority now pending between those gentlemen.

HULLIHEN'S NEW OPERATION.

We publish in the present number of the Recorder a description of a new method of treating exposed dental pulps by S. P. Hullihen, M. D. of Wheeling Va. This paper, read by Professor C. O. Cone of Baltimore, before the American Society of Dental Surgeons, was accompanied by a lengthy record of cases which had occurred in his own practice, he having performed the operation many times during the last twelve months, and kept a careful record of each case. We hope to be able to lay before our readers an abstract of these cases prepared by Prof. Cone, for the Recorder.

Since the article of Dr. Cone was in type, we have perceived that there is another Richmond in the field, in the person of S. P. Miller, of Worcester, Mass., who has published his experience with a similar operation during the past two years, and before he knew any thing about Dr. Hullihen's. It is certainly a singular coincidence that these two S. P.'s. situated in remote parts of our country, should each have hit upon nearly the same mode of practice without either knowing what the other was doing.

Dr. S. P. Miller has published in the Boston Medical and Surgical Journal, a description of his operation and the success which it has met with in his hands. This article being published after Dr. Cone's paper had been read before the American Society of Dental Surgeons, and without alluding to the operation of Dr. Hullihen, has subjected Dr. Miller in some quarters to suspicions of intended piracy. We have been assured, however, by Dr. Miller himself, that it was not his intention to detract any thing from the merits of Dr. Hullihen as the originator of the operation ; but, at the same time, if we rightly understood him, he claimed to have originated it himself also, if subsequently to Dr. Hullihen, certainly before he made his operation known. Dr. Bridges, of Brooklyn, also informs us that he alluded to Dr. Miller's operation, though not so as to make himself fully understood, in the American Society, at its anniversary in 1851, at Philadelphia, and furthermore, that it was the intention of Dr. Miller to explain his operation and success, to the society the next year at Newport, but when he arrived he found that Dr. Hullihen had the floor before him.

It would thus appear that both these gentlemen have arrived at a new and similar method of treating dental pulps, and each without the knowledge of the other, though if Dr. Hullihen, as stated by Dr. Cone, was first to practice it and first to make it publicly known, he should be the first to receive the credit of it.

The operation in itself is simple, and with proper care and suitable instruments may be performed by all careful and skillful dentists, and if as successful in their hands as it has thus far proved in the practice of the inventors will produce a new era in surgical dentistry. It is fortunate for the credit of our speciality that this method of treating dental pulps was not invented or originated by some mechanical dentist, who would have straightway filed a caveat, taken out letters patent, and hawked it about to "the profession" which he claimed to belong to, as the latest and greatest improvement of the age. This is not the first time that Dr. Hullihen has shown his true professional character and liberality, by contributing freely to the storehouse of knowledge and science which is beginning to adorn the speciality of Dental Surgery. Who would not rather enjoy the reputation which such deeds merit and receive, than the paltry shillings realized by the patentee of the greatest and most astounding invention in mechanical dentistry ?

LECTURES ON DENTAL SURGERY.

The Faculty of the New York Medical College having expressed a desire that the lectures on Dental Pathology and Surgery which were delivered in that institution during the last lecture season should be repeated, they will be given this year during the regular annual course, probably in the months of February and March.

As many erroneous impressions are entertained by medical students as well as dentists respecting the object of these lectures, we will state for the information of all that it is not the intention of the lecturer to teach the students, who are qualifying themselves for the medical profession to practice dental surgery, nor to make amalgam and stuff teeth with it even though it be "very good amalgam" as suggested at Baltimore; but, believing that a more general knowledge of the diseases of the teeth and their connection with the general system would be beneficial to the medical practitioner and his patients the Faculty have invited a practical dentist to give a short course on the general principles of the diseases of the teeth and of dental practice, with the view of familiarizing the students with these subjects more than has generally been done in medical colleges. The following extract upon the subject is taken from the annual circular of the college.

DENTAL SURGERY, CHARLES C. ALLEN, M. D., D. D. S.

The Diseases and Treatment of the Teeth.—The great prevalence of diseases of the Teeth, and their frequent complication with those of the nervous system, makes it an object of paramount importance to the student of Medicine and Surgery, to understand the pathology and treatment of the dental system. Even if the physician does not intend to practice in the Department of *Dental Surgery*, he should be familiar with the diseases of the teeth, and understand the correct principles which govern their treatment, that he may diagnose those sympathetic affections depending upon dental irritation, give proper advice for the management of the teeth, and become so far familiar with the nature of dental operations, as to discriminate between the skillful dentist and the charlatan.

During the course, Lectures will be given upon the eruption of the teeth and the changing of the temporary for the permanent set; the irregularities in the dental arch, and the proper treatment to prevent them; the diseases of the teeth and their alveoli, as also the diseases of the gums depending upon dental irritation. The various operations for the cure of these diseases, and the most approved instruments and methods of extracting the teeth, will also be demonstrated before the class, in such

a manner that all may fully comprehend the principles of correct dental practice."

PRACTICAL HINTS ON THE TEETH.

This is the title of a small book by W. E. Ide, Dentist, Columbus Ohio. Dr Ide has done the state some service by writing a very instructive and readable book conveying much useful knowledge to the non-professional reader and published in a neat and beautiful form.

"Practical Information on the Subject of Dentistry," is the title of another popular work of a similar character by E. M. Allen, resident dentist in Marietta Geo. Probably there is no method of advertising so beneficial to both the dentist and the public as by issuing a small work of this kind conveying correct information in a pleasing and attractive style and form. The greatest safeguard against error is knowledge, the dentist, therefore, who desires to build up a lucrative business will seek to attach his patrons to him by imparting to them all the knowledge he can, that they may be able to appreciate better his skill and while they cancel the debt forget not the obligation which is ever due to superior science and art directed by an honest endeavor to do good.'

VOL. SEVENTH OF THE DENTAL RECORDER.

The present number brings us to the commencement of vol. seventh, and affords a fitting opportunity to apologise for whatever we have been remiss in during the past, to promise new efforts for the future and to return thanks to those subscribers who have promptly complied with our just demands, and contributed their mite towards sustaining the work. Those who have not we hope soon to be under a similar obligation to.

The last number of the past volume containing a title page and contents, and an able article from Dr. Hunter, with formulas and full instructions for flowing in an artificial gum upon teeth already arranged upon the plate, will be forwarded to each subscriber as soon as we receive the subscription price for the volume. We adopted this rule, not to mail the last number to delinquent subscribers, when the Recorder came into our hands, and have rigidly adhered to it at the close of each successive volume, in order to remind such subscribers, that the work cannot be sustained without their kind and prompt assistance.

DENTAL RECORDER.—EXTRA.

REVIEW OF DR. HUNTER'S THIRD SET OF FORMULAS.

BY JOHN ALLEN, D. D. S.

Again we have another set of formulas published by Wm. M. Hunter. This is the third set he has given to the profession within the last year, which promises to be of as much utility, without practical demonstration, as either of the others. And what has been his motive? To this enquiry an answer is found in the result which he has intended to produce, which can be seen by looking at the vein of bitter feelings, which have stood out in such bold relief throughout all his effusions upon this subject, which shows that they have emanated from the baser passions of the heart, viz.—Professional jealousy, malice and revenge; instead of philanthropy, generosity or magnanimity. Therefore no practical good can reasonably be expected to result from evil designs. In the first set of formulas that he published, he stated that they were worthless; why then did he publish them, if not for the reason above named? The second set he regards no better than the first, and although no practical good could be derived from them, he seemed to think their publication might serve his malicious purpose. Having failed to realize his expectations thus far, he then sent to Washington and obtained my formulas, and published them also. In doing this he evidently had two objects in view, one of which was to try to annoy me, and the other to appropriate them to his own use—or such portions of them as would serve his purpose—and then claim them as his own, which he has done. In his last formulas, he exhibits the same malicious spirit towards me that characterized his former articles upon this subject, with a few more falsehoods, which we will notice, although we had come to the conclusion to take the advice of an eminent divine, (Dr. B.) who remarked that he once wrote a whole volume against a skunk, and gained nothing by it, but rather got the worst of it. He therefore advises all persons who desire clean skirts, to let skunks alone. But let us first notice a few paragraphs in his last “issue of receipts.” He commences by saying “that he does not know that he shall offer anything new to a certain class of readers, but feels convinced that the better informed of the practitioners in our profession will find a practical elimination of good from old ideas.” As much as to say

that he alone had been able to render old ideas practical. In his next paragraph he states, that to Delabarre must be given the credit of having first conceived and executed the union of artificial teeth with an artificial gum and plate.—Vide Fitch's Dental Surgery. This gum, as described by Delabarre, consisted in a kind of inlaid work, which he called callodantes, which were set in porcelain paste, after being ground upon stones into convenient shapes, and fitted together like joiner's work, which were then united by means of a flux. This, the reader will perceive, was as different from mine as blue is from black.

Delabarre's method was not rendered sufficiently practical to be adopted or brought into use by the profession; therefore cannot be brought as a bar to my patent, on the ground of abandonment. In the next paragraph he gives Audibran the credit for granulated body, and then gravely asks "where is the new principle in the patent now claimed?" Let any one compare the two methods, and he will see that there is no similarity in them. In his first paragraph, he states that he did not expect to give anything *new*, but in his *sixth*, he states that *he* is the one who has perfected the body as used by Jones, White & Co. in the manufacture of their teeth. And in the next sentence, he says, "it is applicable to ordinary gold plate as used by dentists generally in the form of block work, and is made by him in continuous arches where a full denture is required." He further says he uses it, on an alloy of gold and platina, 20 and 22 carats fine.

Here he conveys a false impression, by holding out the idea that his (my) gum, and [Jones, White & Co's. tooth body are identically the same. To prove the falsity of this assumption, one has only to fuse or attempt to fuse a little of Jones, White & Co's. tooth body upon a gold plate, and then he will see the bait that is thrown out for effect.

He next proceeds to prove (what no one disputes) that platina has long been used for dental purposes, and then strings together three or four falsehoods, (merely to give point to his preceding remarks) in the following order. "So it will hardly do to set up the claim for *novelty* at this late date, the *patentee*, however, is excusable, for as *he does not read*, *he presumed* that it was original *in the practice* from which *he pilfered it*, and so *originated it*.

With reference to the use of platina, my remarks in its favor were in reply to his against the use of it, in which I stated that I preferred it as a base for this style of work. That I claim its introduction for dental purposes is *false*, it cannot be found in my specifications. That

I do not read is *false*. That I pilfered it is *false*. That I originated it is *false*. In the next sentence he states, that since he first put work into the mouth, his modes have changed very much. No doubt of it, especially since he sent to Washington and obtained my specifications, for he now uses the same ingredients which are embodied in my formulas, and he now finds that good asbestos is a valuable component, which he did not know until he obtained a knowledge of the fact from me. He also learned from my specifications, that platina scraps, united to the plate with gold, for the body to cling to, together with the cohesive properties of the compound, formed a strong union between the gum, plate and teeth, and he can now see how it is, that teeth mounted in this way can resist such strong force. He next proceeds to compliment Dr. Wildman, the object of which is easy to be seen, and then proceeds to give formulas, which we will pass over without further reference, and merely notice some of the last remarks with reference to me. He thinks my vindication the most childish and contemptible effusion he had ever seen. Be it so. I did not study his taste or interest when I wrote it. I thought it only necessary to notice the main points in which my interests were involved. The first point that I endeavored to establish was that I had made a valuable improvement in setting teeth; and another point was to show that great efforts had been made to wrest it from me—that in spite of those efforts I was fully able to substantiate my claims. Another was that my method is original with me, and I am not indebted to any other person for it. These I regarded as the main points worthy of attention. But we will now notice some of the others, although of minor importance. He says that Dr. Brown described to me a piece of *his* work two months before I had entered my caveat, and endeavors to convey the idea, that it was not until after Dr. Brown gave me a description of *his*, that I attempted anything of the kind myself. This is *false*. Dr. Brown testifies that he saw work of that kind that I had put into the mouth more than a year before, and that he was cognizant of the fact that I had been endeavoring for years to perfect a system by which this could be done, and that I was in the habit of getting materials of him with which to conduct my experiments. Now, will the reader look at the facts with reference to this minute description given me by Dr. Brown, upon which he, Dr. H. lays so much stress, long after I had been producing work of this kind, which fact was well known to Dr. B., he one day remarked to me that Dr. Hunter was getting up something similar, I asked him if the teeth were united to

each other and to the plate like mine, and he said he could not tell how it was done, not being a dentist, but he saw a piece that he was going to send to the World's Fair, and that the gum appeared to be continuous and looked like block work, and that was all that passed between us upon the subject. So much for the minute description given me by Dr. Brown. His next sentence reads thus : Even John Allen himself is not so reckless of his reputation as to hazard the assertion that I could not have proved priority, &c. I do assert most positively, that he cannot show work of this kind that he did prior to my having executed it. On the contrary, it was long after I had first produced it that he did any thing of the kind, and it was the fact of my doing it that prompted him to make the efforts he has to affect the same ends, and that he and his clique have done every thing in their power to wrest it from me. The means which have been employed were calumny and falsehood—but the object was to first put me down and then rob me of my invention. In attempting to do this they found they had a formidable task to perform. Hence the various tactics that have been resorted to to accomplish that object.

He further asserts that the "Miss. Valley Ass. of Dental Surgeons declared at sight in favor of it," &c. That is false. The society appointed a committee one day, and that committee reported the next, having at least twenty-four hours to test it in acids, try the strength of the material, &c., and then reported the result of their investigation to the meeting ; whereupon the society passed a vote of commendation. He then refers to another false charge with reference to Steemer, which I have refuted again and again, with ten or a dozen positive affidavits. He thinks me very impudent or very foolish to call upon the unfledged novices of the Ohio school and sixty dentists to controvert his assertions. Such an array of testimony does not suit his fancy. Again, he says, "failing in my first attempt at imitating what he had cacomplished, I again tried my imitative powers, and now claim as a part of my patent the soldering of teeth to the plate." It is false that I attempted to imitate what he had accomplished. I never saw anything of the kind that he ever did until long after I had been doing this style of work. On the contrary, he called at my house to see some of my new style of work. I showed him several specimens, and he then remarked that he was going to make some and when he got them done he would show them to me, and in some few weeks after that he brought and showed me a piece that he had made, which was the first

I had seen of his make. The *imitation* was got up by *him*, not by me. And I do again assert that the first continuous gums he ever saw fused upon the teeth and plate was done by *me*, and that several years ago, I embodied this principle and applied it practically for my patients. Again, he says, "No man in his common senses would ever dream of soldering the teeth to the plate." Now, if he will look again at my letters patent he will find the following language:—

"This compound should be intermixed or underlaid with gold and platina scraps. These form a metallic union with the plate upon which the teeth are set." And if he will look a little further he will find the following—"Although back plates may be attached to the teeth if desired." Either of these methods may be adopted without conflicting with the spirit of my patent. Therefore his charge against me of fraud, is also *false*.

Again, he says, I "also attempt to show that his work is merely block work soldered on." We have his own words for it, as published in the Dental Recorder, and also a still more clear description of which is given in the fourth number of the fifth volume of the Dental News Letter, which states that "Dr. Hunter's *claimed* improvement, consists in uniting single teeth together and then mounting them by soldering to the plate." Therefore it is *he* that attempts to mislead the reader, not me.

He next states "that one of the specimens described to me was on platina plate." I did not know it—Only one piece was spoken of to me by Dr. Brown, and so indefinite was his description that he did not state what plate it was on. In the next sentence he asserts that "I only got platina plate to experiment with, on learning that he was using it, (this is false,) he not having taken all that was ordered for him." I never knew he ordered any. But again, he thinks it the height of impudence for me to use platina base, because Dr. Leslie had *claimed* it for *him*. Of course then it was very impudent in me to say that I preferred it as a base when Dr. H. wanted the credit of it. He next repeats the enquiry, "should a fracture occur, what are the means of repair that would prevent a recurrence of the evil"? In answer to this enquiry I would state that it is much more easily repaired than ordinary block work, for we do not have to carve and bake a new set of teeth and blocks and then mount them as at first, but simply grind off the gum to the plate, and if it is too weak, strengthen it with additional metal, and then put on a new gum and fuse it, and the work will be perfect.

again, with the same set of teeth, without the trouble of taking the teeth off the plate and then remounting them again.

His next sentence reads thus, "Now for a few more of the main points that he has not thought it necessary to answer," (I thought them irrelevant and unworthy of notice, being of the same stamp, emanating from the same source, and fraught with the same evil spirit which has marked his whole course towards me.)

"I accused him of an attempt to bribe."

This accusation is false, and is based upon the following trivial circumstance. In speaking with Mr. Tomin with reference to employing Steemer, he said Steemer owed him borrowed money, and he wished he could get into some business that would enable him to pay it back. I remarked that if he worked for me, a portion of his wages might perhaps be applied to paying it off. So much for this charge. Again, he says—

"I accused him of serreptitiously obtaining a patent with a fraud upon the face of it, and he has not answered it."

In reply to this charge I do assert most positively that it is *false*, and there is not a shadow of truth in it. Again—

"I accused him of prevarication, and disgraceful evasion, before the American Society, and he has not answered it."

I doubt whether the American Society has ever called upon Dr. Hunter to demand of me redress for grievances which it has not felt or known as coming from me. But he seems to think himself attorney general for all the Dental Societies, although not a member of any, nor was he present at either of the meetings referred to, and proceeds to bring another charge as follows—

"I accused him of having offered to pay for a gold medal to be awarded by a society, and he has not answered it."

I never made such an offer to a society, and I appeal to the society for the truth of my assertion. But in the course of a conversation with Dr. Leslie at the Louisville Hotel, during recess for dinner, he (Leslie) expressed himself as being opposed to making the award of a medal, which had been proposed before the society. After assigning his reasons, which were various, I remarked to him that I did not wish the society taxed on my account, and that I would not accept of any funds of the society, that the award stamped the value and not the few dollars that it might cost, knowing, as I did full well, that the amount was no consideration with the Society, that was not a point which could have

any weight with the association. But Dr. Leslie being Dr. Hunter's right hand man, and having become an inveterate enemy of mine, has made all the capital out of it that he could, and Dr. Hunter retails it out in order to excite public prejudice against me. Again he says—

"I accused him of wilful fraud in placing Brown's note in such juxtaposition, and he has not answered it."

Juxtaposition to what? I do not know what he means. I sent a note to Dr. Brown, and he returned the following answer.

Cincinnati, Nov. 18th, 1851.

DEAR DOCTOR.—I have received your note, making enquiries in reference to your improved method of mounting mineral teeth upon metallic plates, and asking how long since I first saw yours worn in the mouth. You called my attention to it in the mouth of a gentleman, then living in this city two years ago the coming winter.

Respectfully yours, J. M. BROWN.

Dr. J. ALLEN.

Now, where the wrong is in thus eliciting a simple fact, I do not know. I asked him a plain question and he gave me a candid answer, stating the *facts* as he knew them; but such facts do not suit the doctor's taste. "Unwelcome truths he knows not how to bear."

His next accusation reads thus.—

"I accused him of making a false claim, when he claimed to have overcome shrinkage, and he has not answered it."

I now state that I can place my compound, when properly prepared upon a full arch of teeth, and after it is fused upon the teeth and plate it will be found that the teeth have not changed their position in the least, neither is the plate drawn out of place in consequence of undue contraction, and the gum will be continuous without crack or blemish. His next charge, I have answered again and again, and therefore deem it unworthy of further notice. Finally, his last accusation reads thus—

"I accused him of being an *ass*, and he *has* answered it."

In reply to this, I would merely state, that I ever regard low black-guardism as unworthy of notice, and therefore always treat it with silent contempt, therefore I have *not* answered it.

His little story that he next introduces, may pass without comment.

In his concluding sentence he bristles up, and snaps and snarls away as saucy as trip, and says "he will furnish the testimony if I will enter suit against him," &c. I prefer furnishing the evidence myself, for it is not customary for an *offender* to furnish the documents with which to convict himself.

As the question of priority is one of the points to be kept in view, I will here append a certificate from a gentleman I happened to meet with a short time since in this city, (New York), who is now wearing a set of teeth put up upon my improved method three years ago.

I hereby certify, that in the year 1848 I visited Cincinnati, Ohio, and being acquainted with Doctor Allen's family, was a frequent visitor at his house. It was during my first visits that I was shown by the Doctor some specimens of artificial teeth, with gums flowed in upon the plate and teeth which appeared very beautiful.

Doctor Allen informed me that he had been several years in preparing this gum. I saw him frequently in his Laboratory, working at it, and often until a late hour of the night, trying further experiments in order to bring it to still greater perfection if possible. At a subsequent period, being in the winter of 1849 and '50, Doctor Allen executed a piece of work for me, upon which he flowed his gum, and although they have been in constant use ever since, yet the gum remains perfectly good, which I consider the ultimatum of dentistry.

I showed it at the time to several persons who admired it very much, for the very natural appearance of the gum and the beauty of the workmanship.

G. MINER HATCH.

NEW YORK, Oct. 20th, 1852.

Sworn to before me, this 26th day Oct. 1852,

H. K. FROST, *Com. of Deeds.*

Also the following:—

I hereby certify that while acting in the capacity of Agent for Morris Levett's Patent Enamel, I called upon John Allen of Cincinnati, Ohio, on or about the 24th day of October, A. D. 1849; and in conversation with Mr. A. upon the subject of Enamels—saw some specimens which Mr. A. said he had done—also that he had been experimenting for some time previous to our interview.

Given under my hand and seal, this 16th day of October, A. D. 1852.

THEODORE F. ENGELBRECHT.

These are only two among many that I shall introduce at the proper time.

J. ALLEN.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of

SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

VOL. VII.

NOVEMBER, 1852.

NO. II.

ESSAY ON REGULATING TEETH.

Read before the American Society of Dental Surgeons at their Annual Meeting at Newport, R. I., Aug. 5, 1842.

BY E. J. TUCKER, M. D., OF BOSTON, MASS.

Mr. President and Gentlemen:

It was with a proper mistrust of my own ability to afford you instruction, that I consented to address you on any subject at the present time. I did not consent with any conviction that I should render a service that might not be better given by others, but, rather from a sense of duty that the humblest member of society owes to himself and to those with whom he may be associated—always to use at all times his best endeavors to do what he can to promote a common object:

The American Dental Society was not, I presume to say, formed for the display of mere theoretical knowledge, but rather with a more utilitarian purpose, that of interchanging the practical results of common experience and of communicating opinions without ceremony, and without a spirit of rivalry, in regard to the vital interests of our profession. I speak only for myself,—as you are all better acquainted with the opinions of others than I am. It will not be expected that I should tax you with any *fragments of learning*, knowing full well that where the whole is possessed the parts are not wanting.

In speaking of the *irregularity of the teeth*, I claim your attention upon a subject which has an importance in itself, and which requires rather the application of an ordinary knowledge than any great exertion of genius. In the spirit of a praise-worthy ambition to discover new things, we are apt, *very apt*, to hold old ones in contempt. In attempting to accomplish some ends for notoriety, we are too much given to the habit of neglecting what many might denominate *trifles*. It will be conceded, I think, that in making out a course of duty for himself, a dentist should avoid the unworthy motives which slight the items of common knowledge, or which prevent difficult attainments—because, in

the language of Wall and State street, *they do not pay*. Our profession, like all others, has its barren duties, as well as its profitable opportunities. We must take it as it is, doing everything required by science, and neglecting nothing which shall promote the refinements and comforts of humanity. The littles make up the creditable aggregate, and no item—however small—should be disregarded.

It is a recent thing to attempt to regulate the natural growth of the teeth, as if they were to be made an exception to every thing else. To remove a tooth, has been considered as equivalent to the loss of a tooth, as if numbers were regarded in the light of compensation for irregularity. The farmer tends his nursery, and his vegetable bed, that a growth may not be stunted and a crop destroyed. A horticulturist cuts a surplus vine or bud, that the flower may thrive and put forth its full measure of beauty,—or that the fruit may mature in its highest perfection. It is not to be expected that the dentist can remodel the defective jaw, or give unquestionable beauty to badly formed teeth, but no one will deny, that he can very much improve what may be termed unfortunate formations.

It is a difficulty which all must deplore,—that parents generally deem the teeth simply as instruments of use, but not of care. They are not prized until they begin to fail, or are entirely gone.

Irregular teeth are lamented indeed, but few, however, ever seriously look for a remedy,—which too many believe beyond the reach of human agency. Some err, in thinking that the teeth of a child may be made to grow in harmony, but give no thought to teeth of a maturer period. This is a great mistake. Of difficult cases, within the sphere of my practice, five-tenths of the patients have been from 16 to 25 years of age. Out of 60 cases I have not lost more than three teeth, and these were affected previously by disease.

We cannot always command desired results; but it is not reasonable to allow our failures to discourage all proper application of skill.

If the *pulling rings*,—which I have commended to the profession,—do not invariably result in improvement, we have no right to infer that their use is to be condemned. Such a principle would lead us to discard all but literally sovereign remedies, known only to the credulous and the quack.

In the early part of my professional life I was led to consider the best means of saving the teeth.

What is generally deemed an act of friendship on the part of a den-

tist, ought to be considered a professional duty. People do not think of a doctor until they become diseased, and all are comparatively indifferent as to his opinions in respect to preventives. So of the dentist. His aid is not asked except to remove, and to remedy an evil which already exists.

Having two difficult cases, some six years since, I was led particularly to study the best means to be employed in managing them. The spiral springs were too stiff or too yielding, and the gold bands were difficult to adjust. I looked for a substance that would accommodate itself—if I may so express myself—to the circumstances of the case. A substance that would exert a steady power, and adapt itself to the variations of a changing growth in the teeth which were the subjects of treatment. I could think of nothing more proper than India rubber, and with a view to obtain rings of various extent, I ordered *tubes* to be made, of different sizes, which, by cutting transversely, I had at once a class of instruments, the simplest of the simple, and the cheapest of the cheap.

They were easy of application, and, with improvements such as I have been able to make, they have proved to be *efficient* for all ordinary cases of irregularity.

In favoring the use of India rubber tubes, or rings, I would not be understood as underrating all other contrivances, or any of them. I speak an honest opinion, founded on my own experience. Let it be received for what it is worth. I ask no commendation that contributes to personal consideration, or to motives which are not common to the profession.

Though simple, these rings cannot be used with advantage, unless applied with the utmost care. Indeed, a careless application of them may create new difficulties, or aggravate old ones.

The exact position of the teeth, the line of force to be observed, and the tensity of the power to be exerted, are all considerations requiring study and a careful judgment.

I submit the means for your consideration and trial, well knowing that you are too practical in your views to decide upon their usefulness without a knowledge which alone can come from experience and observation, and that you will not be inclined hastily to condemn any method of practice which promises a common good, without a patient and unprejudiced examination.

It might seem to a superficial person as favoring too much the pro-

fession, if we were to recommend both to the parent and physician an early resort to the dentist for advice and service in reference to the teeth of children, and yet such a course would result in economy and comfort. There would be saving of money, and a security against pain.

A child should be early placed in care of the dentist, that he may be spared the premature removal of the teeth on account of a troublesome pain, and that no means necessary for the preservation of the teeth should be neglected. We are necessarily compelled to guard against two extremes—an unreasonable solicitude on the one hand, and culpable neglect on the other.

Mothers are apt to look for immediate remedies, where time alone is necessary with common prudence, or to suppose that because their own teeth required no regulating, the same is true of their children.

A slight soreness or inflammation of the gums may often be relieved by some astringent, until the proper period arrives for the removal of the offending member.

As a general rule no tooth should be extracted until its successor is near at hand. In my opinion there is one rule which should always be observed, viz :—

To extract no temporary tooth from a child unless absolutely necessary for some special reason, such as ulceration, &c. This is done too frequently, and I feel persuaded that it is the duty of the dentist to condemn the practice.

The progress of science depends much upon the exercise of an independent judgment. Dentistry is a profession requiring both science and mechanical skill. We are responsible for its instrumentality. We are not mere agents to answer the specific request of the patients who desire our services in a particular way, and who at the same time hold us responsible for any failure. If a dentist be truly fitted for his profession, he owes a duty to science to use his best judgment in all cases, and oftentimes without regard to the preconceived opinions of those who are the subjects of his care. Otherwise he is constantly liable to the annoyance of complaints for consequences for which he is not answerable, and misrepresentations for which he cannot account, unless his knowledge entitles him to be chief judge in all cases, he might as well save time by omitting all inquiries which are supposed to result in the surest means for meliorating the condition of the patients. For no consideration, whatever, should the dentist be persuaded to please his patrons against his own deliberate judgment. Such a course, may

sometimes excite the conceited patient, who calls upon the dentist as a mere *mechanic*, but generally it would be approved and ensure a safe practice, and tend to establish the respectability of the profession.

Comparatively speaking, dentistry is a new profession, and hence the importance of opening new sources which shall reach every variety of mind engaged in its practice. There may be individuals who have always kept by themselves and who might have important suggestions to make, if we could but reach them.

I would advise a wide survey for discovery, that no one may be neglected who has genius and a disposition for enquiry. Such a line of conduct may lead not only to the improvement of others, *but* result in profit to ourselves. I am no friend to professional jealousy, to that stinted view of things which commences with suspicion and ends with contempt. It is unworthy of the votaries of science—unworthy of man when considered in his moral relations—as a being responsible for his motives and his acts.

We sometimes avoid men because of preconceived opinions which are unfavorable to their standing or capacity, when perhaps a more disinterested mood of intercourse might oftentimes bring within our sphere persons eminently fitted for professional distinction, and who require no aid but the right hand of fellowship to ensure a confidence and to command a skill.

Genius is limited to no class, success confined to no family. The brightest gem is sometime thrown up by the humblest miner, and it is not for us to say who is to be, or *who is not to be* the leader in discovery, the greatest in our art, or the profoundest in his enquiries to advance science and to elevate the profession with which we are proud to be identified.

FILLING TEETH OVER EXPOSED NERVES.

BY S. P. MILLER, OF WORCESTER, MASS.

No subject in operative dentistry has more earnestly engaged the attention of members of the dental profession, for a series of years, than filling teeth after their nerves have become exposed. This is owing to the frequency of the occurrence and the uncertain results which flow from it. That the teeth exert an important influence over the animal economy—that their appropriate functions are necessary to a healthy nutrition and assimilation—that a disturbance of these functions leads

to a derangement, more or less, of parts intimately associated with and dependant upon them—that their preservation is requisite to a perfect intonation and modulation of the human voice, are physiological facts which need no argument to sustain them.

So marked is the sympathetic influence of diseased teeth upon adjacent organs, and parts more remote, that it is a universally conceded point among well-informed dentists, that he who can most effectually counteract it and restore their impaired functions, confers a larger benefit upon the community than the merely *mechanical* dentist; and that it is the duty, therefore, of every operative dentist, in the exercise of his professional skill, to study carefully, both the physiology and pathology of these important organs, in order that, to their various forms of disease, he may be able to make appropriate applications. Formerly, by some of the most eminent physiologists, the teeth were considered as isolated bodies, having little connection or sympathy with the general system; but modern investigation, and the improved methods of treatment, have elevated the science of dentistry, in the true sense of the term, to a specialty in medicine.

The operation of filling teeth when there is little or no sensibility, is mainly mechanical and may be done by persons of fair mechanical tact who have not received a medical education; but when their sensibility becomes exalted or their lining membranes exposed—when their diseases become complicated with those of other tissues, compromising the general welfare, it becomes a matter of deep interest to the patient, and calls for discrimination and decided action on the part of the operator.

Much has been written upon the subject of exposed nerves, and various modes of treatment have, from time to time, been resorted to, such as the application of astringents, caustics, the use of essential oils, destroying them with arsenic, &c.—capping them with lead, tin or gold plate; but all of these have been tried with ill success, in numerous instances, greatly to the discomfort of patients and the vexation and disappointment of dentists. Nevertheless, to meet the desires of their patrons, dentists are often obliged to adopt some one or more of these modes, with little hope of ultimate success.

Arsenic, although the most efficient and certain means of removing the sensibility or destroying the nerves of teeth, is not free from objections, in that it seems not well adapted to certain temperaments, being sometimes absorbed by the dentine and the surrounding tissues, producing

an inflammation, extending to the periodontal membrane—causing a slough of the gum, an exfoliation of the alveolar process, and the removal of the offending tooth. Such results, though seldom, have been known to take place where arsenic had been employed even in small quantities, but may have been owing, in part, however, to the difficulty of retaining it within the cavity. So weighty are these objections, in the minds of some dentists of acknowledged reputation to its employment, whether alone or in combination with anodynes, that they seldom use it in their practice.

The absorption of arsenic, producing death of the nerve, leaves a *poisoned* wound, with a bloody discharge, which must be healed, and anastomosing vessels formed, before the tooth can be filled, with even *comparative safety*.

But another and somewhat serious objection to the use of arsenic, lies in the fact that the use of the teeth, which have been filled after the destruction of their nerves often become diseased from morbid effects produced by it, requiring extraction within a few months, or, at farthest, a year or two, notwithstanding the filling remain sound. In some instances, too, after the loss of vitality from the use of arsenic, the teeth become discolored, presenting an *extravasated* appearance, which, in a *frontal denture*, greatly mars its beauty.

With the idea of remedying these defects to some extent, of substituting a *healthy* for a poisoned wound, of retaining, to the fullest degree possible, the vitality, life-like appearance, and unimpaired functions of the teeth, nearly two and a half years ago I instituted a surgical operation which had been in contemplation for several months.

CASE 1. June 5th, 1830.—The left superior central incisor tooth of Miss H., and the modus operandi as follows. Having wounded the nerve in preparing the cavity for filling, about an eighth of an inch from the margin of the gum, with a small, sharp excavator I made a straight puncture through the alveolus to the fang directly opposite its centre; then, with a drill about the size of the nerve, I drilled through the fang to the nerve, which in this case, being small, was entirely amputated. It was the intention to amputate the nerve with a suitable instrument, in case it were not done by the drill. All sensibility between the opening and the pulp being cut off, the tooth was filled in the usual manner and without pain. It is important that the puncture be made directly over the centre of the tooth and *through* the alveolar, to serve as a guide to the drill, otherwise the object may be defeated without enlarging the

opening more than is necessary. The drill should be worked slowly, removed often and the point dipped in water to prevent its becoming heated; if not, it will cause pain and slight inflammation. The head of the drill should be about the size of the nerve, if amputation be contemplated, a little larger than the shaft, in order that the bone-dust or drillings may escape freely, flattened, and the point sharp and properly tempered. The shaft should have its temper drawn nearly to the head, so that should the patient start suddenly, it may bend rather than break. For this operation one of Babbett's spiral drill-stocks is far preferable to the bow, it being more firmly held by the operator and less liable to slip. After drilling, the bone-dust should be entirely removed from the wound, otherwise it will not cicatrize readily.

October 1st, nearly four months after the operation, the patient called again to have other teeth filled, and reported that there had been no pain, nor but little soreness, and *that* where the gum was punctured. An examination proved what was anticipated at the time of the operation, viz., a re-union of the divided nerve, showing that the recuperative energy of the nervous system exists, as well in the teeth as in other organs. Examinations have shown, too, that the nerve sometimes becomes ossified so as to prevent the introduction of a small instrument into the canal through the opening made by the drill. This tooth presented a natural, healthy appearance, free from discoloration, and in all respects was as serviceable as before it was filled.

CASE II. June 6th.—J. C. Teeth operated on—the right superior canine and two bicuspids. On finding their nerves exposed, and having amputated the nerve of the cuspidatus, a query arose as to what should be done with the bicuspids having *two* nerves. After a moment's reflection, the drill was carried deeper, cutting off both branches, and the teeth filled without pain. The patient was requested to call and report the case, which he did the third day after, by saying—"all right." On examination, the teeth and gum presented a healthy appearance, the cicatrices being scarcely visible. He promised to inform me if the operation did not prove successful, but has not been heard from.

Having treated a few cases in this way, I determined to go a step farther—after amputation to remove the pulp from the nerve cavity. This was done in several instances, the result of which in every case, so far as known, has been as successful as when the pulp was allowed to remain. In cases where the pulp is removed, the teeth are not sensible to impressions from heat or cold.

But the inquiry extended still farther—to the molar teeth having two, three, and sometimes four branches of nerves, and situated so far back in the mouth as to be difficult of access. It was readily seen that this class of teeth, from their position and the number of their fangs, each having a nerve, could not be subjects of this operation as performed on the other teeth. This suggested another experiment—that of drilling into the nerve cavity under the festoon of the gum, wounding the pulp as little as may be, then to cover the exposed part with a pellet of gold made flat and hard, so as to prevent pressure, and leave the result to the *vis medicatrix naturæ*, and for whatever treatment the case might require. This was attended with a result satisfactory to the patient; all that was done being to penetrate the chamber of the tooth to serve as an outlet for the escape of pus, should inflammation and suppuration supervene.

Having treated a molar tooth successfully, and besides amputation of the nerve, either with or without removal of the pulp, especially in bicuspids with two branches, in some instances requiring considerable time, and being somewhat painful to the patient and difficult for the operator, it occurred that drilling a little nearer the margin of the gum, so as, in a bicuspid, to strike the outer branch near the pulp, slightly wounding it, would effect the desired object.

This operation being more expeditiously performed, and with much less pain to the patient, since its successful employment cutting off the nerve has been practised in but few instances. After having operated in about forty cases, embracing the different classes of teeth, with results far better than had been anticipated, without the loss of a tooth, so far as known, some six months after my first experiment, I communicated the idea and method of operating to a few friends, with the request that they would carry it out in their practice, and report their success. This several of them have done, and so fully does it correspond to my own, as to challenge a comparison between this and any other known method of filling teeth after their lining membranes become exposed.

There are instances in which amputation may be resorted to in filling teeth when their nerves are *not* exposed. Every operative dentist is familiar with cases where the teeth, for instance, the incisor and canine, are superficially decayed, but whose sensibility is too much exalted to allow of the removal of the caries preparatory to filling, unless it be in some way reduced. The common mode of doing this is to apply a little

arsenic and cover it with wax, and repeat the operation till the object be accomplished.

A case of this kind occurred Feb. 13th, of the current year, in a lady having six upper and three lower front teeth to be filled. In all of them the sensibility being too acute to admit of the operation, chloroform was administered and three of the nerves cut, after which the teeth were filled without pain. Eight days after, Feb. 21, three others were served in the same way, and on the 28th of the same month the remainder were filled. April 22d, several of the same teeth required filling in other places, when it was found that the nerves were re-united and the sensibility returned, though not in a degree to require a second amputation. In this case, for several weeks there was considerable soreness and slight tumefaction of the gum about the place of puncture, as not unfrequently happens in strumous habits. This patient remarked that she had a "scrofulous temperament, and that a wound of any kind was a great while in getting well."

Whenever the gum assumes a fungoid appearance, nitrate of silver may be applied with benefit. It has been observed that there is less swelling and soreness in those cases where the opening was made under the festoon or margin of the gum, than when made through it, or by raising a small flap before drilling.

Having subjected between two and three hundred teeth to various experiments, with the loss of one tooth only (the inferior right second bicuspid), the method which I prefer and generally practise, is, to insert the drill under the edge of the gum where the enamel terminates, and barely make an opening to the nerve (with a smaller drill than is used for amputating) wounding it as slightly as possible ; then to protect the exposed nerve from pressure, and plug the tooth in the usual manner.

Without going further into detail, I herewith submit the subject to the medical and dental profession, trusting that it may receive a thorough and candid investigation.—*Bost. Med. and Sur. Jour.*

Worcester, Oct. 4th, 1852.



RISODONTRYPY; OR, TREATMENT OF EXPOSED NERVES.

BY C. O. CONE, M. D., OF BALTIMORE.

[The following cases of Exposed Dental Nerves were treated by *Risodontrypy*, or Hullihen's Operation, and are copied from notes taken at the time of the operation, by Dr. Cone.]

CASE 1st. *Sept. 1st, 1852.*—While excavating a carious cavity on the posterior proximal surface of the left inferior lateral incisor for Mrs. R., aged about 22 years, of a nervous sanguine temperament, and general good health, I exposed the nerve-pulp at a small fissure of the superior portion of the nerve chamber. The touch of the nerve was attended with acute pain, and the exhaustion of the atmosphere from the cavity by the tongue and lips of the patient was attended with a sharp pain.

I endeavored to penetrate the fang of the tooth just below the terminal margin of alveolus with a bow-drill, but the refractory character of my patient demanding my left arm and hand to control the head, together with a want of dexterity in the use of this instrument in the mouth, compelled me to complete the operation with a drill made of an ivory handled excavator. The drill was conveyed through the fang of the tooth until its entrance into the nerve chamber, and which was very distinctly felt. The operation was attended with but little pain after the gum was punctured until the drill entered the nerve cavity, when the patient uttered an exclamation of pain. Immediately after the operation no pain was felt in the tooth, and no sensation of pain could be produced by exhausting the air from the cavity in the crown of the tooth. I proceeded to fill the excavated cavity at once.

Sept. 3d.—Saw Mrs. R. She has not experienced any pain in the tooth treated by Hullihen's operation. She says it felt a little sore, but not elongated. I could detect no change of complexion of the crown of the tooth. Some inflammation existed in the gum, most of it dependent on the presence of drill cuttings. Removed such as I could.

Sept. 8th.—I examined the tooth in Mrs. R's. mouth, operated on by Hullihen's method. I could detect no change of complexion of the crown of the tooth indicating the loss of its vitality. No inflammation in the gum. The opening made by the puncture of the drill nearly closed. Patient has felt no pain in the tooth since the operation. This excited my suspicion whether the drill had not amputated the nerve. Endeavored to test the vitality of the tooth by galvanism. Took a small strip of commerce zinc, and brought it in contact with the tongue and the gold plug of the tooth operated on. No sensation indicating vitality was felt. Touched other gold plugs in the mouth plugged in cavities, which were sensitive at the time the cavities were filled. In only one of these teeth was any pain experienced when the plug was touched with the zinc.

This time the setting of the patient was employed in polishing the filed surface and the plug introduced in the tooth having suffered the operation of Risodontropy. The polishing material was conveyed on a piece of wood which passed readily between the tooth operated on and its neighbor. The heat produced by the friction of the wood and polishing material on the above named tooth was so marked as to leave no doubt of the vitality of the crown of the tooth. Care was exercised to avoid deception, and secure the neighboring tooth from contact with the stick and polishing material.

Oct. 15th.—I examined the tooth treated by Hullihen's operation, prior to Mrs. R. leaving the city for the Pacific coast. The puncture through the gum was entirely closed. She has felt no uneasiness except occasionally on taking very cold water a momentary pain was felt in the tooth, but nothing that could be called discomfort.

CASE 2nd. *Sept. 3rd. 1851.*—To-day I exposed the nerve of the first right inferior molar on the posterior proximal surface, for Miss W., aged about 22, of a nervous sanguine temperament, and of a scrofulous diathesis.

The superior and posterior portion of the crown was so removed by the file as to afford free vision of the cavity. The nerve was exposed at two distinct points corresponding to the tubercles of the posterior grinding surface of the tooth. After the cavity was prepared, the exhaustion of the air from the cavity gave great pain. The introduction of the end of the tongue into the cavity produced the same effect. In excavating the diseased bone from the cavity the nerve and its vessels had been wounded and the blood flowed freely into the cavity. The patient was now dismissed for one hour, with the nerve protected by the cavity being filled with beeswax. When she returned, she complained of violent tooth ache,—I punctured the tooth with a "fixed-drill." The drill was placed just at the margin but above the alveolus, and entered the nerve chamber at the neck of the tooth, just above the division of the fangs. The entrance of the drill into the nerve cavity was distinctly felt by its plunge. The operation was attended by a good deal of pain;—the patient exclaiming "that's worse than having a tooth extracted." I could produce pain on applying pressure to the nerve after the operation was performed, and by the same means increase the flow of blood from the cavity formed at the neck of the tooth. The blood that flowed from this cavity was arterial. The pain that was before felt on exhaustion of the air from the cavity, was no longer felt when the same

test was applied. The pain felt by the patient before the operation gradually subsided and in fifteen minutes no pain was felt in the tooth. The only discomfort experienced was the "smarting of the gum."

The want of confidence growing out of experience in this class of practice, together with the violent symptoms which preceded the operation, caused me to hesitate in relation to the treatment of the tooth. I finally determined to introduce into the cavity a temporary filling, and if the operation promised success, replace the tin with gold. I accordingly filled the tooth with block-tin foil.

Sept. 4.—Saw Miss W. again. No pain has been felt in the tooth, that could be called tooth-ache. The tooth did not feel elongated, but she complained of soreness and pressure on the gum. Examined the tooth, no uneasiness could be produced by pressure applied to the crown of the tooth in any direction. Above the puncture, or between the puncture and the neck of the tooth, the circulation was stopped in the gum by the accumulation of the drill cuttings; removed them which offered relief to the pressure of the gum.

Sept. 13.—Miss W. called to inform me that the gum and parts about the tooth had been quite painful at night for the last week. The pain not of a throbbing or lancinating character but dull and heavy. Pain felt more through the night than during the day. Not sufficiently severe to disturb sleep. On examining the tooth found the gum a good deal inflamed on the labial portion of the tooth where the drill punctured it, soreness was felt on this side of the tooth when pressure was applied with the finger down the alveolus to near the termination of the fang of the tooth. Could apply pressure on the lingual portion of the gum without any pain. Violence applied in all directions to the crown of the tooth produced no pain, except when an instrument was forced between the tooth operated on and its posterior neighbor. The file had been used boldly between these two teeth and had lacerated the periosteum where it unites with the free edge of the gum. Patient avoids mastication on this side of the mouth. No elongation of the tooth.

May 17, 1852.—I had an opportunity of removing the tin plug. On examination of the tooth no soreness was felt by pressure on either the gum or the tooth. No marks of the puncture through the gum, which is now healthy about the neck of the tooth. Patient says the soreness of the gum continued some weeks and then entirely abated.

On removing the temporary plug I could find no cavity leading into the nerve chamber. I could pass a steel excavator over the whole floor

of the cavity, it being met in all directions with a boney resistance.—To the eye the floor of the cavity appeared to be covered at the points where the nerve had been exposed with bone of a darker hue, but which presented a firm resistance. The injection of ice water into the cavity gave acute pain which soon subsided. Proceeded to plug the tooth with gold at this sitting.

June 30.—While operating on some other teeth for Miss W., examined the tooth treated by Hullihen's operation and can see no diseased action, and the patient experiences no change marking it as being different from teeth not having suffered the operation.

CASE 3d. *Sept. 4, 1851.*—Mr. W., aged about 19, of a nervous bilious temperament, consulted me in relation to a cavity on the bucal and masticating surface of the inferior, right, first molar. The tooth had been filled when the cavity was confined to the bucal surface of the tooth, but failed. The operator in endeavoring to shape the cavity to retain the filling on the second trial removed so much dentine as to leave insufficient support on the masticating surface of the tooth, and this portion of the wall of the cavity was broken down. In endeavoring to obtain sufficient depth &c. to retain a plug in this position, with sufficient firmness to resist mastication, I exposed the nerve at a point corresponding to the anterior labial tubercle of the masticating surface of the tooth.—The exposure was slight and could be detected by the excavator dipping into a fissure and producing a nervous shock. The vessels of the nerve were not wounded so as to bleed, neither could the eye detect the actual exposure of the nerve. The exhaustion of the atmosphere from the cavity was not attended with much or any pain. The dentine immediately about the fissure which my instrument dipped into, had translucent lines, giving it a coronated-like appearance. Not being fully satisfied that the nerve was fully exposed and not caring to drive my excavator unnecessarily into the nerve to test this point, I plugged the tooth temporarily with block-tin foil.

The patient returned after about two hours, complaining that the tooth was very painful and that the pain commenced soon after he was dismissed and had gradually increased. Considering this sufficient proof of the exposure of the nerve, I proceeded to perform Hullihen's operation, with the instrument, and in the manner described in Miss W.'s case. The instrument was distinctly felt to plunge into the nerve cavity. The pain attending the operation was not great. The pain experienced on his return and before the operation, entirely subsided in ten minutes

after the operation. It was impossible for me to fill the tooth permanently at this time in consequence of other professional engagements.

Sept. 8.—I removed the temporary tin plug from Mr. W.'s tooth.—The point at which I supposed the nerve to be exposed was sensitive on the touch of a fine excavator. The exhaustion of the atmosphere from the cavity produced no pain. The tooth had given no pain after the operation, and in answer to my inquiries relative to its condition he replied "it feels sore." No elongation of the tooth. No uneasiness induced by pressing the crown of the tooth in any direction. The gum, at the point where the drill punctured it, was hard and slightly swollen. I plused the tooth with gold. No pain was felt in condensing this large plug which required a good deal of violence.

Sept. 15.—Again examined the tooth of Mr. W. Complains of some pain about or in the tooth at night and in the morning. Pain not violent—not throbbing—not lacerating, but dull heavy pain. Gum swollen and tender on labial portion of the tooth, pressure applied on the crown of the tooth in that direction was attended with pain. Mastication is not performed on this side of the mouth.

Sept. 25.—Mr. W. informed me that his tooth has been improving, the soreness of the gum has almost or quite subsided. Some days ago he endeavored to eat a cold apple, which was brought in contact with the tooth, which produced pain that continued for some hours. The puncture through the gum can not be detected; pressure in any direction gives the patient no sensation of pain.

Oct. 1.—Saw Mr. W.—ice-water applied to the plug of the tooth treated for exposed nerve, gives acute pain. Gum has a healthy appearance. Can masticate on this tooth without pain.*

CASE 4th. *Sept. 10, 1851*.—To-day I exposed the nerve at two distinct parts in excavating a cavity on the posterior proximal surface of the right superior first bicuspid of Miss F., aged about 24, of a bilious nervous temperament and of general good health. The exposure of the nerve was attended with a good deal of hemorrhage from its vessels, but

* *Oct. 20, 1852*.—To-day I had an opportunity of filling a small cavity on the masticating surface of the right inferior first molar, for Mr. W. This tooth was treated by Hullihen's operation, on the 4th of Sept., 1851. In excavating this tooth cavity to-day, for the plug, the dentine of the tooth was very sensitive. No indication of disease beyond the carious cavities which were filled, marked the condition of the organ or surrounding parts.

caused no pain to the patient, and when informed that the nerve was exposed, expressed surprise. I performed Hullihen's operation.

July 24th, 1852.—To-day I have seen Miss F., who resides some 70 miles from the City. The puncture in the gum has not closed, on introducing a bristle into it could detect puss. The patient gave the following history of the tooth: About a month after the operation, the tooth began to be painful on change of temperature of the mouth—in taking first cold, and afterwards warm drinks—finally slight elongation was first experienced, and still later a "pimple" appeared filled with puss where the drill punctured the gum, which she opened. Since that time she has had no pain in the tooth of any kind, but occasionally the "pimple appears, filled with matter." It should be remarked that the first superior, left bicuspid, first and second, superior, left molars and the first and second right superior bicuspid, first and second, right molar, had lost their crowns from dental caries, but at no time had their destruction been attended with pain. I extracted the fangs of these teeth during my attendance on the patient last September.

TO BE CONTINUED.

UNION OF SINGLE TEETH TO FORM BLOCKS.

BY HENRY VILLERS.

To the Editors of the *Dental Recorder*:

"Monsieur Tonson come again !!!!"
"Great cry and little wool."

The following is the old method of uniting single teeth into full sets, in masses with gums and fixing them to gold plates as practiced by me in Albany, N. Y. in 1835.

When the plate is struck up, and fits the mouth in a proper manner, take plate or pivot teeth and arrange them in form with wax, placed on the front of the teeth to keep them in their proper position for the patient's use. Now, mark on the plate between the edges of each tooth, and punch the holes for the pivots, to hold the block firmly to the plate.* Solder the pivots in the holes of the plate, and it is ready for the shaping of the gum paste, which is as follows.

* These directions, we presume, apply solely to pivot teeth, as teeth with backs would not require pivots to hold them.—*Ed. Recorder*.

R. Glass of Borax.*

Larva, (or fused pumice-stone,)†

French chalk,

Kaolin,

Porter Bottle glass; each one ounce.

Grind fine and flux it into a transparent body, and pulverize fine for use. Mix, by grinding into a suitable plastic paste, by grinding with equal parts of water and Tungstic acid.‡ It is now ready to fill in between the teeth and pivots and to form the solid gum,—but previous to this the plate should be warmed, and a coating of the glass of borax ground with the tungstick acid, and water put upon it. When this is dry upon the plate, use the gum paste upon it, and it will be ready for the gum enamel color, which is as follows :

R. Flux; five parts,§

Purple of Cassius; one part.

To be ground fine together. (This is *Rose Gold Enamel*, as used by Wedgwood and others in England.) Mix by grinding with Tungstic acid and water, and apply *Secundum artem*. This is my method.

I will now give you Dr. Heath's, of Hatten Garden, London.

R. Flint Glass,	$\frac{3}{2}$ xj.
Felspar	$\frac{3}{2}$ vj.
Kaolin	$\frac{3}{2}$ j.
Flint or Sand	$\frac{3}{2}$ j.
Borax	$\frac{3}{2}$ j.
Calk of Tin	$\frac{3}{2}$ j.
Nitre	$\frac{3}{2}$ j.
Pearl, or Pot ash	$\frac{3}{2}$ j.

Grind and flux, and regrind for use. The gum color enamel, for this is the same as used by China enamelers, and which is given in my formula. Maury, Delafonze, Fouchard, Benard, and Mons. De Maunt of Paris never used anything but block pieces, and they were not much better than fire brick body, and of course, did not contract any of consequence.

The following formula is a fair specimen of those generally used twenty-five years since as given to me by Deau Bau De'Chamont, Soho Square, London.

* Raw Borax run down into a glass by heat.

† Fused Pumice Stone 12 parts; Nitre one.

‡ Tungstick Acid is the most powerful flux known.

§ General Flux.—Litharge $\frac{3}{2}$ vj; Borax $\frac{3}{2}$ vj; Calcined Flint $\frac{3}{2}$ jj.
Grind fine, mix well, and run into a flux.

Calcined Flint	lbs. jj.
China Clay	lbs. jj.
Pipe Clay	lbs. jv.
Fire Brick, (or Vanvers)	lbs. vj.
Window Glass	3 xij.

Grind fine into a paste with lime water. The enamel was simply window glass, and the coloring matter for enamel and body was "yellow calx."*

Mr. Heath of London, I believe, was the first man in England who made full sets of teeth perfect in appearance, translucent, or without contraction. I was the first in this country, Drs. Harwood, Flagg, Tucker, Keep, and Woofendale followed in transparent life-like teeth, and were my pupils.

This wonderful new method of uniting single teeth into solid blocks, by a composition that will fuse before a gold plate will melt, is not what is desired; for although it may have equal strength at a low heat, it will change in the mouth. Mr. Heath made it a rule to enamel and bake sets of teeth of his make, and worn in the mouths of his patients, as often as it was necessary, at so much a year, as all the enamel was corroded, worn, or absorbed away in a short time, leaving the body looking like porous pumice stone.

Any further information which I may possess on this or any other subject connected with Dentistry, I shall be happy to give to you, as I have been full thirty-six years in the profession, am now about sixty years of age, and have, therefore, little interest to keep secret the little knowledge which I possess.

Yours, to command,

HENRY VILLERS.

233 Grand-st., New York.

SCRUTATOR.

A Letter to Daniel Drake, M. D., on the cause of Premature Decay in the Deciduous Teeth, in which is embodied a Review of the Discussion of the Miss. Valley Association of Dental Surgeons upon the same subject; by SCRUTATOR. Philadelphia, 1852.

The above is the title of a pamphlet, containing eight pages, which we have received and perused with pleasure. Who the author is we cannot tell, though as a Yankee, we may be allowed to guess, and so

* R. General Flux, 3 vj; Antimony, 3 j; Iron scaels from a Smith's anvil, 3 ss. Grind fine, vitrify, and grind for use. This is used instead of Titanium, but is too bright a yellow for dentists' use.

may every other Yankee. The letter of Dr. Drake was addressed to the Miss. Valley Society in Sept. 1846, and the questions contained in it discussed in the society Oct. 1851. Both the letter and discussions were published in No. 5, Vol. 6, of the Dental Recorder.

Scrutator reviews the lame and impotent conclusions to which, after five years of deliberation, the speakers had come to, respecting the causes of the decay of deciduous teeth, with much self-complacency and great plainness of speech, accusing the members of ignorance, irrelevancy and retailing the opinions of old matrons and nurses. All the causes of decay in these teeth, which the members had been able to discover, and explain and elucidate, in their interlocutory, Scrutator sums up into "*non-cleanliness, calomel and candy*" and declares it to be "unfortunate, very unfortunate for the Dental Profession that such an opinion should emanate from such a body of its professional men."

After thus summarily disposing of the opinions of the speakers in the Miss. Valley Association, Scrutator proceeds to give his own views, as follows :—

"The strict interpretation of your question embraces an enquiry into all kinds of decay to which the deciduous teeth are liable. Now as there are two prominent causes of this kind of decay in the temporary teeth—causes which differ from each other both in their nature and the time of life at which they commence—it is important, therefore, that they should be here referred to. The one is almost identical with the prevailing cause of caries in the permanent teeth, and usually commences its ravages in the molars, and that about the fifth or sixth year of the child's age. The other may be said to be *sui-genus*. It shows itself most frequently in the incisors, and is liable to commence at any period, from the time the teeth first show themselves through the gums up to that when dentition is fully completed. Believing that your inquiries were intended only to embrace the last mentioned cause of disease in the deciduous teeth, I shall therefore confine my answer solely to a description of this cause; deferring all further notice of the other until I come to reply to your second question respecting the premature decay of the permanent teeth.

The "diathesis, or constitutional predisposition, or disorder, which so often occasions decay in the teeth of our children," is remotely constitutional in its nature, and appears to partake both of a scrofulous and of an acquired vice :—of a scrofulous vice, because it is most prone to attack the teeth of scrofulous subjects :—of an acquired vice, because the general system must be likewise much impaired for a shorter or a longer period before the immediate cause of the caries of the teeth is induced.

The immediate cause of the decay is a malignant ulcer, most generally peculiar to the gums, but occasionally attacking the cheek.

The ulcer is most liable to occur at three particular epochs of the child's life, and appears to increase in malignancy with the child's increase of years.

The first period, and most common and mildest form of the disease, occurs during the cutting of the incisor teeth. It sometimes commences with the first appearance of these teeth; sometimes not until they have all acquired their full length through the gums.

The ulcer is generally confined to the extreme edge of the gums, revealing only a small light, ash-colored, zigzag line, so small that it is rarely detected by either physician or nurse. Upon a close examination, the edge of the gum will be found separated from the teeth, and the body of the ulcer plainly seen between the edge of the gum and necks of the teeth.

The gum reveals but little signs of inflammation, is not very sensitive, and may remain in the condition just described several weeks without any material increase or diminution of the ulcer.

The teeth become slightly loose, rough and dark colored, and are finally more or less destroyed, depending on the virulence and duration of the ulcer. *It is this form of the disease that occasions so many children to have dark colored, decayed, and broken off incisors, from the age of one year and upwards,* while the molars may be sometimes entirely sound. This form of the disease has never, before, so far as I know, been described.

The second period that the disease occurs, but much less rarely than the first, is about the time of cutting the molar teeth, and is sometimes very malignant. The ulcer usually appears on the gum at a point where a tooth is about to penetrate, and proceeds to a greater or less extent, often around the entire dental arch. The disease may appear in its mildest form, and run only along the extreme edge of the gum, or it may involve the greater portion of both the gum and alveolar process, loosening the teeth, turning them dark and softening them, as though they had been exposed to the strongest acids. This form of the disease has been occasionally observed and described.

The third form of the disease is fortunately still more rare, but fearfully fatal. It usually appears during the shedding of the temporary teeth, and although always commencing on the gum, it rapidly extends to the cheek, often destroying both jaw and cheek, as well as the life of the patient. This form of the disease has been described by medical writers under the name of *cancrum oris*.

All three of the forms of the ulcer just described are liable, and have often been mistaken, for the effects of mercury. But the sharp, ragged, yet well defined edge of the ulcer,—the exoriating and corroding effects of the discharge—the slight tumefaction of the gums and the terrible fetor of the breath, even in its mildest form—a fetor having nothing of the odor of that arising from mercurial salivation,—are characteristics sufficiently marked to say nothing of the roughness and discoloration of the teeth, to prevent any mistake of that kind, if closely observed.

I trust I have now pointed out to you the prominent cause of "the

early decay of the deciduous teeth of our children,"—*a cause that is generated somewhere in the general system, and not in the bucal cavity as advocated by the "Mississippi Valley Association of Dental Surgeons."*"

In due time, I shall do myself the honor of addressing you again upon the subject of your second question to the Society just named, and believe me,

Dear Sir, Very Respectfully, yours, &c.,
SCRUTATOR.

Here we have a new cause assigned for that species of caries which so often attacks the teeth of children, producing "dark colored, decayed, and broken off incisors. If this cause be the true one, it seems to us very remarkable that one so simple and so apparent should have escaped the notice of the medical and dental profession so long. Although Scrutator has sought to be "very brief" and contented himself "by simply stating facts, without entering into any minute details" it seems to us that he owed it to himself, if not to the profession, while advancing a new theory (if a mere assertion, unsupported by either arguments or inferences, can be so called) to have set forth the reasons which he relies upon to support the "facts" so confidently asserted. In the absence of any reasons many may be induced to pronounce them what Junius call "false facts." If caries of the temporary incisors is caused, as Scrutator asserts, by a "malignant ulcer" we should like to know whether the "excoriating and corroding effects of the discharge" are produced by a newly secreted matter or by that which has been long discharged and suffered to remain about the necks of the teeth until fermentation has produced a decomposing acid. That local disease in the mouth is a remote cause of caries of the teeth—by preventing the use of proper means for removing diseased secretions, the remains of food &c. in consequence of which they are suffered to remain until decomposition takes place and acid is formed, which slowly corrodes the teeth—has been long supposed, and is the theory advocated in the Miss. Valley Association by Dr. Griffith.

Now, as this theory may embrace the three causes repudiated by Scrutator, viz., "non-cleanliness, calomel, and candy" we must believe that the "excoriating and corroding effects of the discharge" are produced in some other way, and are thrown back upon the chemical theory of solution or decomposition.

We regret that Scrutator has left the subject so much in the dark and shall wait patiently for another letter which he has promised in due time

to address to Dr. Drake, the author of the questions propounded to the Mississippi Valley Association of Dental Surgeons. If, as Scrutator asserts, the decay of children's teeth is caused by these malignant ulcers, it is of great practical importance to know what the nature of the discharge is, which does so much mischief, that we may select or compound the proper antidotes.

We agree with Scrutator in the opinion that the Miss. Valley Association utterly failed to give a satisfactory answer to Dr. Drake's first question. Their discussion was nothing more than a rehash of the old theories, popular errors, and "maternal-like opinions," and obviously retailed there without any previous thought or preparation, for the discussion of such grave and important questions. We shall be glad to know that Scrutator has discovered a more rational and satisfactory cause for the decay of the deciduous teeth, and hope that the subject may be still farther elucidated in his subsequent letters.*

HULLIHEN'S OPERATION.

We republish, in the present number of the Recorder, from the Boston Medical and Surgical Journal, the paper of Dr. S. P. Miller, referred to in our last, giving his experience with an operation similar to that already described by Dr. Hullihen. In a subsequent number of the Boston Journal appears another paper from Dr. Miller, in reply to a note in the same paper, from Dr. C. O. Cone, in which the latter charges that Dr. Miller's paper "is calculated to convey an incorrect impression as regards the history and character of an important operation in Dental Surgery." In the second paper of Dr. Miller, he says—"I herewith forward you documentary proof, from persons of respectability and eminence in the legal, medical, and dental professions, such as must satisfy any unprejudiced mind, that the discovery and the operations growing out of it, as detailed in the Journal for Oct. 20th, originated with me." This evidence is not published in the Journal, but will appear "at a proper time."

In the discovery of the operation, Dr. Miller does not claim *priority* over Dr. Hullihen, but expresses a willingness "to compare well attested dates, &c., as to the time *when* and the persons to *whom* I (he) made known the secret," and also to show that the subject of his discovery and

* Since the above was written we have seen the death of Dr. Drake announced in the papers. He has been a popular Professor in several Medical Colleges at the west, was an eminent Surgeon, and enjoyed the confidence and esteem of a large circle of friends.

experiments was brought before the American Society of Dental Surgeons by Dr. Bridges, "one year in advance of Dr. Hullihen."

From the fact that Dr. Hullihen did not inform Dr. Cone what the nature of the experiments was, which he was trying on exposed nerves, until the winter of 1850-51. Dr. Miller, who had previous to this time described his own operation to several gentlemen, contends that "it must be apparent to every unbiased reader, that what I (he) has written and said upon the subject has been without any knowledge that he (Dr. Hullihen) was pursuing a similar course."

Having no wish to prejudge the question of origin or priority, we would suggest that the gentlemen "compare notes," and then make known the results to the profession, that we may render honor to whom honor is due.

In connection with this subject, we publish in another part of this number an interesting chapter of cases, from the pen of Dr. Cone. The notes of these cases were taken at the time of the operations, and present a faithful and instructive narrative of his experience with this new method of treating exposed dental pulps. We commend them to our readers, and think that their perusal cannot fail to inspire confidence, and encourage others to attempt the operation. Dr. Cone writes us that Dr. Gardette, of Philadelphia, informed him previous to the 25th of last July, that he had performed the operation about *sixty* times with uniform success. We have already commenced it; but sufficient time has not yet elapsed to enable us to form an opinion as to its success or failure, from our own experience.

THE FIRST GOLD PLATES.

Dr. H. Villers, one of the oldest practicing dentists in this city, has informed us that the first gold plates, or palates, in America, were made in 1826, by Mr. Newton, a dentist from London. Previous to this the American and French dentists used only the "wedding wire" passing from one side of the mouth to the other with clasps, or springs for full cases, to which the teeth, whether human or mineral, were attached. We occasionally meet with old cases of this kind, which have been worn for many years and answered an excellent purpose. In cases where only a few of the front teeth are required, and these are not needed for hard usage, we prefer this method to the large plates which are now in

common use, as it is much pleasanter to wear, because it does not cover with an artificial appendage so large a portion of the mouth. In most cases the wire may be bent to the plaster casting, and save the trouble of making metallic casts.

Dr. V. also recommends the following alloys for striking gold plates into form: For the male casting, Tin, lbs. xj.; Antimony, jj.; For female casting, tin, one part, and lead, two parts.

CONTINUOUS GUMS.

Prof. John Allen is very fortunate in having Dr. D. H. Porter of this city, as his agent for selling rights and giving instructions in his new method of uniting single teeth by a continuous silicious gum. Dr. Porter's great experience in *block making* gives him advantages over those of less practice, and has enabled him already to make improvements upon Prof. Allen's original plan. The specimens of this kind of work made by Dr. Porter are fully equal to any that we have ever seen.

The block work which Dr. P. has made for us since he came to this city, has given great satisfaction, both to ourselves and patients. Those that have been made for soldering have withstood the fire of the blow-pipe, with one exception, without crack or blemish, and when set have had a very natural and life-like appearance, while their strength is such that not one has ever been returned for repairing since they were inserted. We regard them as near the perfection of *artificial teeth*.

NEW TEETH.

W. S. McIlhenny & Co., have shown us specimens of mineral teeth manufactured on a very different principle from what they are usually made. Instead of dipping the biscuit tooth into the liquid enamel and afterwards painting the deeper tints of color, as has been done by Stockton, or penciling the different colored enamels upon the biscuit, after the plan of Mr. Alcock, they unite the enamels of different colors and the body, by the process of moulding, and the tooth is finished by a single burning. These teeth have a very good appearance. We have tested them with a blow pipe, and find they stand the test of heat well.

W. S. M. & Co. are making arrangements to open an assortment of their teeth in New York.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of

SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

VOL. VII.

DECEMBER, 1852.

NO. III.

REMARKS UPON MAKING GOLD PLATE AND SOLDER.

BY B. WOOD, M. D., DENTIST.

MESSRS. EDITORS:—Having recently made some experiments in the way of preparing gold plate and solder, I take the liberty of submitting the result, with the hope that it may elicit further information from some of your readers, who may be more conversant with the working of metals.

Gold Plate.—The ordinary alloy of eighteen to twenty, or even twenty-one carats, for gold plate, is liable to objection. In some mouths it will tarnish, and even corrode. A plate not liable to this, may be made by alloying pure gold with a small proportion of platinum; and for the past few years, this expedient has been resorted to by dentists. Still, the plate thus made is objectionable. If enough platinum is used to give the necessary elasticity, &c., it impairs the color, as well as the susceptibility of receiving a good polish. Besides, the peculiar gray and almost dirty hue is apt to suggest the suspicion that the plate is base. But a few days ago, I was called upon to testify, for a worthy professional brother, to the fineness of the gold used in an artificial set of teeth, the plate of which was alloyed in this way. It appears the patient had exhibited the work to a quack dentist, who, doubtless, because the gold did not, in point of *color*, compare well with his of sixteen or eighteen carat (alloyed with copper or silver) succeeded in making the impression that it was very impure.

The object of my experiment was to obtain a plate which, while as fine as possible, should possess the requisite hardness and elasticity, retain the natural gold color, and be susceptible of the desired polish. The following proportions I find to answer these ends better than any other that I have tried:

By weight : 45 to 50 parts of pure gold.
" " 2 " silver.
" " $\frac{3}{4}$ " copper.
" " $\frac{1}{4}$ " platinum.

I first prepare the alloy as follows : platinum, 1 part ; copper, 3 parts; silver, 8 parts, (or from 6 to 8 parts.) This forms a very pretty alloy, of a bright silver color, with a yellow tinge. It is quite hard, and of a firm, close structure : malleable, and bears a fine polish. With this, I alloy the gold, to from $21\frac{1}{2}$ to $22\frac{1}{2}$ carats, according to the fineness required, (by adding $2\frac{1}{2}$ or $1\frac{1}{2}$ parts, as the case may be, to $21\frac{1}{2}$ or $22\frac{1}{2}$ of pure gold.)

It may not be known to all of your readers that platinum can be made to unite *directly* with gold, as also with silver and copper, by the heat of the common blow-pipe. Many dentists are in the habit of filing platinum, in order to melt it with gold, and some are under the belief that, even then, it does not really fuse but rather *mixes* with the latter, which has frequently led them to throw away their chippings from the rivets of artificial teeth, lest the presence of such should spoil their plate. Although always satisfied in regard to the actual fusion of platinum with gold, yet I confess, laboring under the impression that, at the ordinary heat, this took place only at the surfaces of contact, and that hence it was necessary that the platinum be in a state of minute division as in the form of filings, in which I used it. Nor was this error corrected, until after trying some quite coarse filings with gold, when, finding this to fuse under the blow-pipe, I tried next rivet chippings, and then larger masses of platinum with the same success. The platinum *amalgamates*, as it were, with the fused metal, in the same way that gold combines with melted tin.]

All that is necessary, is to put your scraps to be fused into a depression made in a piece of charcoal, and then apply an intense heat by means of the blow-pipe. In alloying platinum with copper, in this way, it is well to cover in part with another coal, that the copper may not oxydize too soon. In this manner, every one can make his own alloy, and then, if he chooses, send the proper proportions to the goldsmith, for melting and rolling.

I have frequently made inquiries of dentists, (whom I supposed likely to be informed on the subject,) in regard to the mode and proportion of mixing platinum with gold, but without obtaining any thing satisfactory ; it may have been from a want of the knowledge sought after, or to a disposition to keep it a "secret." In either case, the above hints may not be without value to some in the profession. At any rate, there are many things which, though they should not prove to be *new*, it is well to bring into notice anew, so that they be not forgotten. [A case

in point, is the mode of "welding" platina, recently communicated to the profession by Dr. J. Allen, of Cincinnati, but which was performed in the time of M. Delabarre. "In order to accomplish it, he placed a very thin gold plate, twenty carats fine, beneath the two leaves of platina, fastened them by two rivets, and soldered them by the fusion of the intermediate leaf."* This is upon the same principle of that published in the *New York Dental Recorder* for February, viz: by soldering through the means of gold. And yet Dr. Allen none the less deserves our thanks for suggesting its application, in uniting together platina fragments, otherwise useless for the purposes in which this metal, as a mass, comes into requisition.

Gold Solder as Fine as the Plate.—From various experiments, I find the following answers best in point of color, &c., for the above plate; pure gold, 22 parts; tin, 1 part; zinc, 1 part. This, by annealing, is sufficiently malleable for solder; melts easily enough, and flows well. It will be seen that it is twenty-two carats fine.

Judging from a series of experiments in making solder with tin, zinc, brass, copper, &c., I am lead to believe that copper adds nothing to the fusibility of the alloys, nor assists in making it flow better. It would seem to be the combination of zinc that gives the flow.

The advantages of this solder are, 1st, its fineness; 2d, its being of the same standard as the plate used, thereby obviating the galvanic action resulting from a difference in fineness of plate and solder; 3d, it is without the copperish taste so frequently experienced from solder alloyed with copper; and 4th, it has not the hardness which this metal communicates, but on the other hand, can be as easily filed or cut, and leveled off, smoothed, and polished, as the plate itself.

I first make an alloy of four parts gold (pure); one tin, and one zinc. This forms a grayish white, and very brittle mass. Although sixteen carats fine—or as fine as *jewellers' gold*, which some "dentists" use for plate!—it crumbles under the hammer, and melts very readily. Of this, take one part to three of gold, and you have the above.

ON MAKING SOLDER.—CONTINUED.

MESSRS. EDITORS:—In your last number I gave a recipe for making solder 22 carats fine, for gold plate of the same fineness, by alloying pure gold with equal parts of zinc and tin. As it has been generally

* *Desirabode's Science and Art of Dentistry*; Dental Library edition, page 430.

received as "the law," in our profession, that solder must necessarily be a few carats *inferior* in standard to the plate on which it is to be employed, and as some may question whether tin and zinc will combine so as to work well with gold, or rather whether gold will "work" at all in companionship with these "base" metals, I have thought that it might not be out of place to send you a sample, that you may judge for yourselves. It consists of three teeth mounted upon a small thin plate, with clasps attached, all united by the above solder. The plate is $\frac{1}{2}$ 21 carats fine, being pure gold alloyed with equal parts of silver, copper and platinum. The color is perhaps, all that could be desired, as well as the elasticity, &c. Regarding platinum as equal to gold, the plate may pass for 22 carats fine. The solder is 22 carats, made by alloying pure gold, (of the same piece used for the plate,) with equal parts of zinc and tin. It will fuse on gold of an inferior standard, 20 carats certainly, and I think likely as low as 18 or 19. The single tooth I send, that you may try its tenacity. The plate of this is about 20 carats, alloyed with silver and copper.

The solder does not flow so freely and evenly as could be wished, but it is as soft as the plate, and can be readily trimmed down with a scraper—a different proportion might improve it in this particular. By continuing the heat, the zinc and tin rise to the surface and are burned off in a great measure, thus leaving the pieces united by almost pure gold.

Some years ago, (it was in 1846,) I made a very fine solder by the use of tin alone, which, although objectionable in some respects, I have frequently found valuable in others. Rolled in strips it is not nearly so brittle as the above—indeed hardly more so than the gold itself; but it melts harder and does not flow well, except under a heat which would jeopardize the plate if employed in soldering sets of teeth. It fuses *in situ*, as it were, clinging however to the plate with great tenacity. I employed it in two or three cases, in parts of sets without accident, but have chiefly found it useful in uniting strips for clasps, or in thickening the edges of my plate where I wished to prevent the stiffness that would have rendered the latter objectionable. I have no doubt that some of the other base metals might be found serviceable. The subject certainly seems worthy of experimental inquiry, on the part of the dental profession.

If the use of 15 or 16 carat gold is objectionable for *plate*, it should also be so for *solder*. In full sets of teeth as much solder is sometimes used as might suffice to make some of the thin, narrow plates which we

frequently find in parts of sets. The salts of copper liable to be formed in the mouth from this metal, as contained in the ordinary solder, might certainly act perniciously in cases where the compounds, produced under similar conditions, from a like proportion of tin or zinc, would be comparatively innocuous ; but apart from this, the small proportion required of the latter metals for the above purpose, must obviate all objection on this score. .

While writing, I will here take the opportunity of correcting an erroneous impression that may have been conveyed by a general remark in my last, wherein I spoke of having frequently made inquiry of dentists, whom I supposed likely to be informed on the subject, in regard to the use of platinum, without obtaining anything satisfactory, &c. This appears to have been regarded by some, as intended to apply to the profession in this city, thereby conveying the impression abroad that an illiberal spirit existed in our midst. I did not certainly intend this. The members of the profession in this place are not only skillful dentists, but I have ever found them liberal minded and free to communicate their "*modus operandi*" in the art. Taking for granted that we all used platinum in nearly the same manner and proportion in alloying plate, and knowing that the plate thus prepared by all, was liable to the objection (in regard to color,) which I sought to remedy, I had not recently conversed with any upon the subject. In alloying gold with platinum, Dr. Gunn and Dr. Ross, have, like myself, been using the latter, in the form of filings. Drs. Hamlin & Morgan, inform me that they have, for some time past, used it in the form of leaf or thin strips. The proportions vary, according to the elasticity required, from say, 2 to 5 grains the dwt. I have tried plate with one-third platinum, but this quantity does not appear to give any greater elasticity than a smaller proportion. An alloy of equal parts of copper, silver and platinum, possesses, perhaps, all the advantages of that which I proposed in your last number.—*Dental News Letter.*

SPRINGING OF PLATES.

BY DR. J. TAYLOR.

Perhaps there is nothing in Mechanical Dentistry that gives more trouble than the springing (or "warping") of plates in soldering ; and

we know of nothing more calculated to try the patience of an operator. We presume but few in the profession can say that their patience has never been thus tried. The subject has excited a good deal of attention for the last two or three years, and we think is not still satisfactorily settled, for we still get letters asking "how can we avoid the difficulty?"

We shall devote a short space to answer, as well as we can, this question. We will first try and find out a rational or philosophical cause and then, as far as the nature of the case will permit, apply the remedy.

Some think it the unequal application of heat; some think it is owing to the alloy; some to the fact that the plate is not sufficiently confined in plaster sand and cast iron box; some think the expansion of the cast iron box helps along the difficulty, and hence use a box of sheet iron; while others use a copper ladle. Some apply heat very gradually, and others pay no attention to such precautions, and some say their plates "never warp"—"fortunate souls," they never have any trouble in any of their operations—their plugs never drop out, they never break a tooth in extracting, and they always make suction plates. But to the cause of the plate springing in the operation of soldering.

We hear a good deal of the expansive power of heat, and that metals expand in heating, and contract in cooling. These truths are too well established to bear a negative argument. Yet we wish to speak of a certain kind of contraction which takes place in the application of a high heat to gold, silver, palladium, or even platinum plate. We presume that it will be found, if a plate of either of the above metals be heated to near the fusion point, it will contract, or draw to the place at which the greatest heat is applied; or to get the idea more in full, apply heat to fusion and the plate will contract itself into a ball. This fact establishes another, which is, that solder should flow at much less heat than is necessary to melt the plate on which it is used. We can use for soldering on platinum pure gold, and no danger of springing the plate. We can use on eighteen carat gold, alloyed with platinum, sixteen carat solder made of gold, silver and copper, and if the plate was properly prepared, should expect no springing.

Gold alloyed with copper is more elastic than when alloyed, we believe, with silver; and we attribute much of the difficulty which exists on this subject, to the combination of this metal with gold to give color, &c. to the plate. A very small quantity of iron, zinc, or lead, will make gold very brittle; hence the great uncertainty of working plate made of

filings and scraps, unless these have been first thoroughly refined before drawn into plate.

It requires great care to prevent the deterioration of gold in the laboratory. The wearings from the files, the adhesion of small particles of lead in swedging, particles of zinc, &c., &c., &c., all tend to injure the working of gold. Five dwts. of scraps and filings from such gold, will render brittle and refractory fifty dwts. of pure gold. Such gold should always pass carefully through the refining process before being rolled into plate, and especially so when suction plates are required. A few grains of zinc, of lead, or iron filings will render brittle an ounce or two of gold. Tin has the same effect, and reduces very much the amount of heat requisite to melt the gold. It is a well known fact, that solder can be made by adding a small quantity of grain tin to gold plate, which will make solder nearly as fine as the plate itself, and which will flow readily on it. This solder although beautiful in appearance, yet injures the plate, and hence has been rejected. All alloys do not affect alike the gold ; an alloy of platinum gives elasticity to the gold, yet from the fact that it increases the amount of heat necessary to fuse the gold, it enables us to use a finer quality of solder without that high degree of heat which will endanger the springing of the plate. An alloy of copper gives hardness and elasticity to the gold, and as the copper contracts more than gold in cooling, it must tend to spring the plate when used in any great amount, in either the solder or plate. We refer the reader to an article of Dr. A. C. Castle in January Number of Dental Register, which gives some excellent directions to prevent the springing of plates.

We regard, therefore, as the true cause of the springing of plates, the nature of the alloy, and the intensity of heat applied in soldering. In atmospheric pressure plates, we have noticed that in almost every case where the plate has been sprung in soldering, that it is raised from the palate and impinges on the outer border. In one case we punched a hole through that portion of the plate which covers the palate, and found it raised near a quarter of an inch. Many in soldering keep up a continuous jet on this portion of the plate during the operation ; and often, we have no doubt, a much greater amount of heat is thrown on this part than is necessary to flow the solder.

How shall we remedy the difficulty ?

We must remember that in working the plate it acquires hardness and elasticity, and in this state it is more apt to spring ; heat necessarily changes this condition, and the plate is first expanded, then in cooling

contracted, and if the heat is carried too far, or near the melting point, the metal tends to assume a globular form, and we have a kind of contraction on itself.

After the plate has been adapted by swedging to the mouth, it should, as Dr. Castle remarks, be always annealed; and we would in this heat as high as in soldering, for if it springs now, it will more surely spring in soldering; and for this reason—it is brought in contact with other portions of plate, united by a still baser metal, and one which will contract in cooling more than the plate.

A plate which has been adapted or well fitted to the mouth, and which is changed from this adaptation by annealing, we regard as very uncertain, and prefer at once getting out new plate. Gold which is reduced in standard to eighteen carats, is not generally fit for dental purposes, and will not bear solder fine enough to resist the action of the fluid of the mouth. For atmospheric pressure plates, we prefer gold not less than twenty-one to twenty-two carats fine, and containing not more copper than is in the British sovereigns: or take pure gold and alloy with two parts silver to one of copper. Plate of such gold is more easily swedged to fit the plaster model and mouth, than of an inferior quality, and will bear the use of the finest quality of solder used in Dental Practice. Such plate, if well annealed after it is adjusted to the mouth, will not spring in soldering, unless, first by the application of too great heat; and second, by the use of too much solder containing copper; and, we may add, the union of all the backings of the teeth. We have no doubt but that this increases the difficulty. This continuous band of gold united, and the joints filled in with solder, contracts too much for the plate in cooling; and as Dr. Castle remarks, "draws the plate npwards and inwards towards the internal median line of the central incisores." We have tried the immersing of the plate as suggested by Dr. Castle, "in molasses," yet cannot say that any special benefit is obtained by it. It changes somewhat the color of the gold, giving it more of the copper shade. Yet we regard the thorough annealing of the plate as the great thing at this time to be accomplished. We often unite the backings on the front teeth, and then on bicuspids and molars, leaving the set in three sections.

Bad plate, with anything like good solder, will spring in spite of all external appliances; sand and plaster cannot hold it; and we have long since given up all idea of holding the plate down while soldering, by

any contrivance whatever, only so far as is necessary to keep the teeth in place, and preserve them from injury by heating.

We solder in cast iron boxes, and never move our teeth after they are put in plaster and sand, until they are all soldered. We heat up our operation in a furnace, until the iron box becomes red, and then with the blow-pipe pass the blaze around where we wish the solder to flow, avoiding, as much as possible, throwing a continuous jet on the centre of the plate which covers the palate.

It may be asked why we use copper at all in plate or solder, if you regard it as rendering the plate more liable to spring? We answer, because we have not found it necessary to reject it altogether, and it leaves a better colored gold than silver or platinum; yet we do regard the amount usually employed as far too great.—*Dental Register.*

RISODONTRYPY; OR, TREATMENT OF EXPOSED NERVES.

BY C. O. CONE, M. D., OF BALTIMORE.

(CONTINUED FROM PAGE 52.)

CASE 5th. Sept. 27, 1851.—Mr. C., of New Orleans, aged about 30, of nervous bilious temperament, and in the enjoyment of general good health, consulted me in relation to the first, right inferior bicuspis, which had been plugged on its anterior approximal surface. The plug had fallen out. The tooth had given no pain. The excavation of the cavity gave not much pain, but yet it was sensitive to the use of the excavator. I exposed the nerve at a small point, and blood flowed from its vessels. Performed Hullihen's operation on the tooth. This was not attended with much pain. After the operation some sensation could be felt on exhausting the atmosphere from the cavity, but not that pain which attended the same effort before the performance of the operation. The nerve is still sensitive to the touch of an instrument when brought in contact with it. No pain was felt, however, on the introduction of the plug.

Oct. 6.—Saw Mr. C. to-day. He had felt no symptom in the tooth operated on, marking it from any other tooth in the mouth. The tooth is not sensitive to pressure. No inflammation in the gum, the puncture through the same by the drill, cannot be detected by the eye.—Mr. C. leaves for New Orleans to-morrow.

July 20, 1852.—Had an opportunity of examining the tooth of Mr. C. It presents every appearance of vitality. Gum is healthy about the tooth. No marks of the puncture except a perceptible thickening of the alveolus at just the point where the puncture was made. The patient says he has experienced no sensation in the tooth which would direct his attention to it, and that “the tooth now feels like a live tooth.”

CASE 6th. *Sept. 30.*—To-day I exposed the nerve in excavating a cavity on the anterior approximal surface of the superior left central incisor, for Master H., aged 14, of a bilious nervous temperament. The portion of the nerve exposed was not large. No blood followed. Performed Hullihen's operation. The exhaustion of the atmosphere from the cavity after the operation, gave no pain, which was acute when a vacuum was made in the cavity before the operation.

Oct. 1.—Master H. does not complain of the central incisor operated on, nor does he feel any change in the tooth, and only a little soreness of the gum. Tooth presents a healthy appearance,—little or no inflammation about the gum. The tooth is not sensitive to pressure applied in any direction.

Oct. 3.—Master H. complains of occasional pain being felt about the tooth. Pressure on the crown gives a slight sensation of pain or rather uneasiness. His gum slightly inflamed about the puncture.

Oct. 27.—Master H. informs me to-day that the pain and soreness of the incisor operated on have subsided. No uneasiness or discomfort is experienced. Puncture through the gum has closed. No inflammation in the soft tissues. The crown of the tooth shows the complexion of vitality.

Feb. 6, 1852.—Master H. called to-day in relation to other teeth, and I examined the incisor operated on for exposed nerve. It has every indication of health. Has not given the patient any uneasiness since October. No mark of the operation to be seen about the gum.

CASE 7th, *Oct. 7, 1851.*—Mr. R., of a sanguinous nervous temperament, and general good health, aged about 19, desired me to fill the anterior approximal surface of the second, right, superior bicuspid. In removing the diseased dentine from the cavity, the nerve was exposed, and its vessels bled freely. The exposure of the nerve was attended with considerable pain. I performed Hullihen's operation. In doing this the very point of the cutting edge of the drill broke off. I think this occurred at the time the drill entered the nerve cavity. No pain, after

the operation, was felt on exhausting the atmosphere from the cavity. The nerve was, however, sensitive to the touch. Plugged the tooth with expectation of a failure. No pain was felt in the tooth after it was plugged.

*Oct. 8.—*Mr. R. called to let me examine the bicuspid operated on yesterday. No pain has been experienced. Pressure in any direction on the crown of the tooth gives no pain. There is but little inflammation in the gum. Mr. R. leaves this day for Europe.

CASE 8th. *Nov. 4, 1851.*—To-day, Mr. S., aged about 27, of a sanguinous nervous temperament, consulted me in relation to a large cavity on the posterior proximal surface of the left, second, superior bicuspid. The tooth had several times given him uneasiness. The diseased dentine readily yielded on pressure, compressing the nerve and affording great pain. I excavated the diseased dentine, exposing the nerve, which was very irritable and painful. Its vessels bled freely. I proceeded to perform Hullihen's operation. The drill that I endeavored to employ in the operation was not sufficiently tempered, and bent under the effort. The refractory condition of the patient, growing out of apprehension and natural excitability, admonished me to avoid any delay in performing the operation. I therefore completed the puncture through the fang with a drill, some larger than would have been chosen for the purpose, and with a neck almost equal in size to the point of the cutting edge. Pain and irritation of the nerve ceased on the completion of the operation. The pain attending the operation was not great.

Nov. 11.—Saw Mr. S, every day from the time the operation was performed. But little inflammation occurred in the gum. No unusual symptom occurred to direct the attention of the patient to the tooth, further than it "felt a little sore."

Nov. 19.—The tooth has become very sensitive and painful to the presence of warm fluids received into the mouth.

Nov. 21.—Mr. S's. tooth is still painful to the presence of warm fluids, and feels a little elongated.

Nov. 24.—To-day, on examination, I found a small collection of matter, at the point pierced by the drill over the fang of the tooth. All pain subsided on the appearance of the pus.

Dec. 1.—Examined the tooth of Mr. S. No change.

May 9, 1852.—Examined the tooth again. The discharge of puss at the mouth of the puncture is much less. Some little uneasiness in

applying pressure in some directions to the crown of the tooth. The vitality of the crown destroyed.

CASE 9th. *Dec. 6, 1851.*—While excavating a cavity on the posterior approximal surface, of the right, inferior, first molar, for Miss D., aged about 30, of a nervous sanguinous temperament, with general good health, I exposed the nerve at a small point. The exposure was attended with a good deal of pain, of an acute nervous character, which was felt on exhausting the atmosphere from the cavity. I proceeded to perform Hullihen's operation. The puncture could not be made back of the alveolus, as it would carry the drill too far down on the tooth to allow the instrument to enter the nerve chamber. The entrance of the drill into the nerve cavity was distinctly felt with the hand, and observed by an exclamation of pain by the patient. As I withdrew the drill, I felt it break. An examination of the puncture presented the broken end of the drill, exposed about half a line beneath the dentine of the tooth. Could not dislodge it. All pain of the operation quickly subsided. The atmosphere could now be withdrawn from the cavity without pain. Yet there was sensibility of the exposed nerve. I determined, under the circumstances, to perform the operation of filling the tooth, which was completed at this sitting.

Dec. 12.—Saw Miss D. She has had no pain in the tooth operated on more than in other teeth when the cavity is sensitive in the operation of plugging. The gum is slightly swollen about the puncture. Pressure on the crown of the tooth in all directions induces no pain whatever. Tooth sensitive when ice-water is brought in contact with the plug. Patient expressed more confidence in the permanent success of the operation than I feel.

May 17, 1852.—To day I examined Miss D's. tooth on which I operated breaking the instrument. The tooth has given her no inconvenience. It is still endowed with vitality. The puncture through the gum has not closed. No inflammation in the gum. On exploring the puncture could detect where the drill had penetrated the tooth, after which the bristle met with resistance. There is no discharge from the puncture.

July 9, 1852.—Had an opportunity of making inquiry from a member of the family, and Miss D's. tooth still remains comfortable, without offering any kind of offense.

CASE 10. *Dec. 13, 1852.*—I exposed a nerve in a cavity on the anterior approximal surface of the left, superior, central incisor, for Mrs.

J., aged about 28, of a nervous bilious temperament, and precarious health. In addition to her usual feeble health, the patient has recently recovered from an attack of typhoid fever. The tooth in which I exposed the nerve has given some uneasiness, but no absolute tooth-ache. I performed on this tooth Hullihen's operation. It was not attended with much pain. The exhaustion of the atmosphere from the cavity, after the operation, was not attended with the same degree of pain as before it was performed. On examining my drill, I found the extreme point broken. I doubt not that it is somewhere in the artificial canal, but cannot discover it by examination.

Dec. 17.—To-day I examined the tooth of Mrs. J. The gum is but little inflamed. No pain has been felt in it, and pressure can be applied to the crown in all directions without pain. To-day I exposed a nerve in a cavity in the anterior approximal surface of her right, superior central incisor. The tooth had given the patient some uneasiness, but not tooth-ache. I performed Hullihen's operation, which was attended with but little pain. Could exhaust the atmosphere from the cavity after the operation without as much pain as before it.

Jan. 13, 1852.—I was called on by Mrs. S. Complains of pain in the left, superior, lateral incisor, which I had plugged on the 23d of December last. The plug was introduced in the anterior approximal surface. No symptom attended the preparation of the cavity or during the operation of plugging to lead to the suspicion that the nerve of the tooth was exposed. The tooth began to pain her on the 11th, and gradually increased until now; pulsating pain is felt in the crown of the tooth. No elongation is felt; nor is pressure on the crown of the tooth in any direction attended with pain. The gum about the tooth is redened, and in places excoriated by some stimulating application made by the patient. I performed Hullihen's operation. The drill was shortly followed by a drop or more of slightly colored serum. The pain immediately abated. The two central incisores on which I had operated had given her no pain. The puncture over her right incisor had almost closed and the point could only be detected by a difference of color. The puncture over the left central incisor has not closed and its location can be distinctly recognized.

Jan. 19.—Mrs. J. informed me that the left, superior, lateral incisor, gave her some pain yesterday. The gum about the puncture is slightly swollen. She tells me that cold or warm drink taken into the mouth

produces pain in the three incisors operated on. No pain experienced by applying pressure to the crowns of either of these three teeth.

Jan. 20.—I exposed the nerve in a small fissure when excavating a cavity on the masticating surface of the superior, right molar in the mouth of Mrs. J. I performed Hullihen's operation. The drill entered the tooth between the neck and the alveolus, just where the bucal fang united with the crown of the tooth. The operation was attended with considerable pain, after which none was felt on exhausting the atmosphere from the cavity.

Jan. 22.—Mrs. J. informs me that no discomfort followed the operation on the molar. The tooth and gum on examination present no symptoms of inflammation.

Feb. 15.—Mrs. J. complains of pain in the molar which had its nerve exposed. No inflammation in the gum; no pain produced by pressure in any direction when applied to the crown of the tooth. The pain did not continue long at any time, but occurred at intervals, and was not of a throbbing character.

March 29—To-day Mrs. J. called at my office with her face swollen. She had suffered pain for two days, in the right, superior central incisor. This tooth was sensitive to the least pressure. There was a collection of pus in the tissue about the gum—gave it vent by lancing, which afforded immediate relief.

May 17.—To-day I examined the teeth in Mrs. J.'s mouth, on which I performed Hullihen's operation. The nerves in the two superior central incisores, and the left, superior lateral, have suppurred. The teeth have changed their color, and puss can be forced from the puncture of each, which has not closed in the least. The right, superior, second molar still retains its vitality. The puncture in the gum has almost closed.*

CASE 11th. *Jan. 15, 1852.*—Miss DeB., aged about 19, of a nervous bilious temperament, and general good health, consulted me in relation to refilling the posterior approximal surface of the right, superior central incisor. In excavating the cavity I exposed the nerve in a fissure of the chamber. The whole operation of excavating the cavity

* *Aug. 28.*—To-day I saw Mrs. J. She informed me that the right, superior second molar, gave her considerable pain at one time during July, since which time it has not been painful, although not as comfortable as before this period. On examining the tooth I am satisfied that the nerve is destroyed. This is the last tooth in Mrs. J.'s mouth operated on, all of which have failed.

was attended with a good deal of pain. The tooth had never before given the patient any discomfort. The atmosphere could not be exhausted from the cavity without a severe nervous pain being felt through the whole tooth. Performed Hullihen's operation. This was done with an instrument larger than the usual size of the nerve canal at the point perforated, and at the age of the patient. The operation was marked by considerable pain. After the operation could exhaust the atmosphere from the cavity without much pain. Proceeded to fill the tooth.

Jan. 22.—To-day I had an opportunity of examining the tooth of Miss DeB. She had experienced no discomfort except when very cold liquids were received into the mouth, when the tooth would become painful for a few minutes. No pain on pressure being applied to the crown of the tooth. There was considerable inflammation immediately about the puncture in the gum.

March 4.—To-day I examined the tooth operated on in the mouth of Miss DeB. The puncture is closed, and can only be detected by a slight difference in the color of the tissue, and without a knowledge of the operation having been performed, would not be detected on careful examination. The tooth has given no discomfort, and feels healthy to the patient.

TO BE CONTINUED.

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*For the Dental Recorder.*

### PURPLE OF CASSIUS.

Fine gold is to be dissolved in *aqua regia*, which consists of two parts of muriatic acid to one part of nitric acid, with a gentle heat. This is then the muriate of gold. I use six times the weight of acid to one of gold to dissolve it.

Pure tin is also to be dissolved in muriatic acid, as much as it will digest without heat.

To obtain the *Purple of Cassius*, drop thirty or forty drops of the muriate of gold into a bottle containing about half a pint of hot rain or river water, and immediately after about fifteen or twenty of the muriate of tin, and a purple powder will be precipitated, which is the article used to procure the life-like gum color.

In the manufacture of mineral teeth, I would recommend the use of

a compound color for general use, both for body and enamel, as it will save much nicety in dividing the different materials into eights and sixteenths of a grain, &c. The compound color I use gives a warm and life-like appearance to the teeth.

|                             |               |      |
|-----------------------------|---------------|------|
| R. Red Oxide of Titanium,   | $\frac{3}{3}$ | j.   |
| " " Gold,*                  | $\frac{3}{3}$ | ss.  |
| Oxide of Platina,           | $\frac{3}{3}$ | ss.  |
| Oxide of Cabalt,            | gr.           | v.   |
| Uranium, {                  | a. a          | ⊕ j. |
| Zircon, }                   |               |      |
| Black Oxide of Manganese, { | $\frac{3}{3}$ | j.   |
| Nitre (pure crystals),      | $\frac{3}{3}$ | ss.  |

Grind all well together, and expose them to a white heat in a Hessian crucible for about one hour. In this state it should be taken from the fire and thrown into cold water with the crucible. When cold, break up and select the coloring matter from the fragments of the crucible, and grind into an impalpable powder. When a light yellow body is required, about five grains of white body to one of the compound color will suffice; or if a dark shade is wanted, add about one grain of muriate of ammonia, platina to five of compound color. In this way every desirable shade of color may be made.

HENRY VILLERS.

The above directions may be of use to tooth manufacturers, but the "Delightful Kiln Drink," invented by Dr. Villers in 1827, before the temperance reformation had begun, and recommended by him, to prevent colds and fevers from exposure to the heat of the kiln, we think, in these temperance times, can be dispensed with.—*Ed. Recorder.*

## PRACTICAL DISCUSSIONS.

The Society of Dental Surgeons of the State of New York, held a regular quarterly meeting at its room on the first Tuesday in December, and proceeded in an informal manner to discuss the subject of filling teeth on their approximal surfaces.

C. C. Allen lead off, by stating that he supposed the object of the discussion was to compare the different methods of operating among the members, that each might select from others and appropriate to himself any hint or information, which his own candor or impartiality would allow him to see the utility of, to be substituted for, or incorporated in-

to his own method. In order to place the subject before the members he woold proceed to give his views and to describe as well as he could his own mode of operating.

It was generally conceded that the filling of teeth upon their approximal surfaces was more difficult than upon any other part, and the great difficulty lay in approaching the cavity. When the teeth are in contact with each other, the first step is to separate them. This was done either by removing a portion of one or both of the teeth, by files or cutting instruments, or by forcing them apart by wedges of various kinds.

Forcing teeth apart was an operation of, comparatively modern date, and which, when first introduced, was very popular for a time; but he thought that he could safely say from his own observation of cases treated in this way, by skillful dentists, and from conversation with some of the most prominent men in our profession, that the plan of forcing teeth apart, exclusively, in young subjects, had most signally failed. In all such cases he thought it absolutely necessary that a permanent space should remain between the surfaces that had been filled, as without such space the teeth would not (he would not say could not) be kept clean, and without cleanliness caries would be very apt to recommence around the filling.

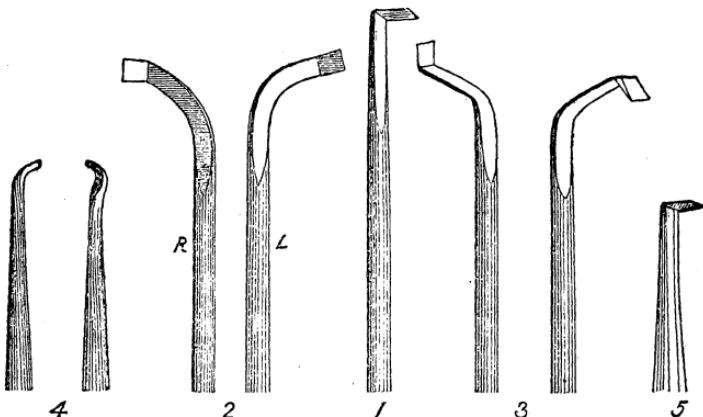
Forcing would answer better for patients more advanced in life, when the dentine had become consolidated. In a few cases, also, where the teeth in the superior maxilla form a smaller arch, and close within those of the inferior, where the tendency would be strong for the teeth to approximate and close the spaces made by filing between the superior incisores, his practice was to depend entirely upon forcing, without removing any portion of the teeth, unless when they are so much decayed as to make it absolutely necessary. He then removed the approximal surfaces on the upper part of the teeth, leaving that portion of them near the cutting edge, entire, so that when the teeth come together again, after filling, there would be an acute triangular space between them, having its base bounded by the gum above. If the teeth were broken away on the approximal surfaces quite to the cutting edge, he knew of no other way to treat them but to remove as little as possible, fill them as well as he could, and trust them to Providence. Forcing was also an excellent adjunct to the file and cutting instrument. His usual practice was to remove enough from the approximal surfaces of the incisores to prevent them from coming in contact after the operation, and then to complete the opening by forcing with India rubber, which he allowed

to remain in until the soreness, caused by it, had subsided. Except in a few rare cases he did not resort to force to separate the bicuspides and molares, but removed their surfaces by cutting and filing.

In the use of the file, care should be taken to remove so much of the edge of the cavity of the upper front teeth that it would not afterwards break away and let the filling fall out. This he thought was a very common cause of failure. The inferior incisores striking up against the backs of the superior, when biting some hard substances, would fracture away the enamel forming the back of the cavity, and then all subsequent biting would be against the filling, which would soon start it out. It is certainly better to cut this enamel away at first, than that it should afterwards break away and endanger the loss of the filling.

Suitable space having been procured, the next step in the operation is to remove all softened dentine and form the cavity. The instruments used by Dr. Allen for this purpose were very simple and mostly having one shaped blade, or cutting edge. These instruments were invented by himself in 1832 or 1833. How many dentists had invented the same kind before him, or how many since, he would not pretend to say. He had shown them to many who had adopted them and continued to use them. Probably many other dentists had used the same form of instrument, though they were not for sale, and, so far as he knew, never had been at the furnishing stores. One of them was shown.

The following cut illustrates the different modifications of the instrument which could be used in all cases, though with it, in difficult and complicated cases, he used several other shapes common in the shops.



(The engraver has found it very difficult to represent the excavators

by a wood cut, though the figures will assist in giving an idea of their form. Both excavators and pluggers are considerably magnified in the drawing. They are made by bending at a right angle a steel wire flattened towards the end so as to pass freely through the space made between the teeth to be filled. The inner surface is then filed smooth, and, after the instrument is tempered, polished, and forms the cutting edge, the bevel being, like a chisel, all on the other side. Fig. 1, is the one most used in the front teeth, though Figs, 2, right and left, are very convenient for cutting away the upper and back, and lower and front corners of a cavity in the superior incisores. Figs. 3, are for cavities in the anterior and posterior approximal surfaces of the molares, and should be put in a large sized handle. Figs. 4, are for introducing and placing the gold, and for examining it after the cavity is supposed to be full. Fig. 5, is for forcing the filling against the upper sides of the cavity during the process of filling.)

This instrument does not act as a scraper when properly used, but cuts like a chisel when the beveled side is against the wood to be cut with it. As the blade of the instrument passes around in the cavity, the hand of the operator should be rotated in the same way, so that the cutting edge of the instrument may stand at an obtuse angle with the surface of the cavity to be cut away. When used in this way, all chattering of the instrument, which produces such a disagreeable and painful sensation, is avoided. It has three cutting edges, and is kept sharp by wheting them on an Arkansas stone. As the blade wears down, the stem or shank may be ground to correspond, when it will answer for a smaller cavity, and, retaining the same form, may be used in this way like a chisel, until the blade is entirely worn away. With this kind of excavator, he could rapidly form a cavity, and with much less pain than with a burr or scraper; while the blade being at a right angle with the shank, insured the cavity to be as large at the bottom as in the opening.

For filling the cavity, Dr. Allen preferred Abby's gold foil, No. 4, and he prepared it by folding it in and in upon itself, and finally rolling it between his fingers into elongated spheroids. Before commencing to fill the cavity he provided a supply of these of every desired size, which depended much upon the size of the cavity. After the cavity was properly dried, (which he accomplished by the use of cotton, prepared by boiling in an aqueous solution of alkali to deprive it of oil,) and the napkin was so disposed as to keep the saliva from flowing into the cavity, the first pellet of gold was taken up with a small pair of pointed tweez-

ers, and, if necessary, flattened a little by them, so that one end of it can be introduced between the teeth into the cavity. With a small pointed plugging instrument, (Fig. 4,) this is carried into that part of the cavity most difficult of access, which is generally in the upper teeth, the superior and palatal part, and, in the lower, the inferior lingual portion. The first piece of gold introduced is held in place by the end projecting against the edge of the cavity, or the approximal surface, if sound, of the adjoining tooth. In this position (supposing it to be in an upper tooth) it is forced upwards and backwards against the side of the cavity, with an instrument like Fig. 5. The next piece is introduced in the same manner, and forced upwards and forwards into the superior and labial part of the cavity. In this manner the cavity is filled downwards, until that part nearest the cutting edge or masticating surface of the tooth is approached; here he began to force the filling in the opposite direction, gradually filling the lower part of the cavity, and leaving, if possible, the last spot to be filled, in the centre, or a small distance from the outer surface of the cavity. In this stage of the operation, the greatest care should be observed to force the gold as solid as possible under the enamel or against the parieties of the cavity. When this is completed, and only a small opening in the midst of the gold remains to be filled, we had arrived at the nicest point in the operation, for when the gold is introduced in this way, much depends upon properly securing the last piece introduced. Selecting a piece of gold of the proper size, which can only be done by practice, he rolled it as hard as possible between his thumb and finger, and then forced it into the remaining opening. When forced in solid, this piece should not project quite far enough to form a part of the surface of the filling when completed, but the adjoining gold should be turned in and condensed over it.

If every piece of gold as it was introduced has been thoroughly forced home, there will be no more to be done than to condense the projecting portion and finish the surface of the filling; but it will sometimes happen in large cavities, where the gold is introduced in large pieces, that parts of the filling will remain too porous. To guard against this, every part of the plug should be examined with a fine pointed plunger, and where it penetrates, the opening made should be filled by another *last piece*, as already described. Going over the surface in this way will very thoroughly condense the gold, and necessarily force in most of the projecting part. After this, with one of his small excavators, he scratched or scraped over the whole surface of the filling, to see if any part would

flake off. If it did, he forced in a small point and introduced more gold, but if not, he proceeded to condense the gold as solid as the tooth would bear, with condensing forceps, after which the surface was finished by first filing it down near to the edges of the cavity, then further condensing with the burnisher, then alternating the file, the burnisher and pulverized pumice-stone, until the surface was brought down to the desired form, when the last touch should be by polishing with some fine powder, such as tripoli, Spanish white, or rouge. This, Dr. A. said, was the method of preparing and filling cavities on the approximal surfaces, which, after trying almost every other that he had ever seen or heard described, he had settled down in. He might go on, if time would permit, and speak of many exceptional cases requiring some deviation from the method which he had described, but the judgement of every practical man would, in such cases, suggest the proper course to be pursued.

Dr. M. K. Bridges, said he approved of the plan of Dr. Allen, in the main. He had used the same kind of excavators for many years, and thought them superior to every other kind which he had seen. He thought the operator was less likely to wound the nerve with such instruments than with the ordinary excavators sold by the instrument makers. He knew some dentists who used burr drills exclusively for preparing the cavities on the approximal surfaces of the teeth. A short time since he saw a young lady whose teeth had been prepared for filling in this way, and between all the front ones in the upper jaw were small round holes made by the burr—while turning it to excavate a tooth the shank of the instrument would break away the enamel on the opposite one. For separating the teeth preparatory to filling, he first used the file, and then forced them apart by introducing cotton cord as tight as possible above where he had filed. After suffering it to remain a short time, he removed it and put in a piece a size larger. In this way he could generally spread the teeth sufficiently to fill them at one sitting of the patient, and he thought it safer than to insert India rubber wedges, as the patient would frequently stay away until the forcing process had injured the tooth in the socket. One of his neighbors, he said, once told him that it was his uniform practice to file the teeth through to the gum, so that they might afterwards close together and keep the fillings from falling out.

Dr. Bridges thought it was good practice when the lower incisors stuck up against the backs of the upper ones, so as to endanger the

breaking away of the enamel that supported the filling, to file off the lower teeth enough to prevent them from biting.

Dr. Geo. Clay said that he generally filed away the upper incisors obliquely so that their posterior surfaces would be much narrower than the anterior, he then filled them from the back, and afterwards allowed them to come together and strike each other near the end and along the front edges while an open space remained behind. In many cases he forced the teeth apart without any filing, filled them, and then allowed them to close again. When not too much decayed they would stand well : he had many cases now sound which had been treated in this way from five to eight years. In one case he had destroyed the nerve by forcing the teeth apart (Dr. Allen had met with one such accident in his practice.)

Dr. F. H. Clark thought with Dr. Allen that the practice of wedging exclusively had signally failed. He had never seen a nerve destroyed by it, but had several times seen the teeth started from their sockets and afterwards lost in consequence. In introducing the foil he sometimes first put in a large pellet and then forced into it slips of gold. He could not use the pellets so quick as he could a coil or fold of gold prepared in the form of a ribbon. When the file was used and a shoulder left near the gum, he wished to know what form should be given to it. The most eminent dentists whose fillings he had seen had left them square, he did not like that form but could not procure files to make them concave.

Dr. Allen said that he had usually procured small oval files and ground away one side, with the other he could give the shoulder such a form that no foreign substance could lodge there. He had seen many where caries had commenced in the corner and undermined the filling.

Dr. J. G. Ambler had never known a nerve to be destroyed by wedges of india rubber. Where the enamel remained entire around the filling and the teeth came together he thought they would not decay ; but if the dentine was exposed where they came in contact they were sure to decay. He had adopted the plan of annealing the gold after he had folded it into wedge shaped pieces. This he did by holding it in the flame of a spirit lamp, and he found it would pack much better for it.

Dr A. Johnson said that sixteen years ago a patient called on him with a wide separation between two teeth, made by wearing cotton to protect a tender tooth. Upon this hint he practiced. He thought the

teeth should be gently and slowly forced apart so as to prevent all soreness and inflammation.

Dr. F. P. Chase had but little to say as his usual method of filling teeth had been pretty fully explained by Dr. Allen. He used the file freely as he thought that polished dentine was safer than unclean enamel.

Several other members took part in the discussion but agreed in the main with what we have here reported, and the meeting was felt by all, we believe, to be a pleasant and profitable one. It is very much to be regretted, however, that in interlocutories of this kind, (not only in our own society, but in others also) the members come together to discuss practical subjects without having given the subject sufficient previous thought. If they would prepare themselves, before coming together, by arranging the subject somewhat in their own minds and by consulting the authorities, there would be much more useful information elicited and the whole discussion would be of a higher order, as it is there is always much said that is extremely common place and would not pay for reporting.

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## HARRIS' DENTAL SURGERY.

The fifth edition of this standard work has just made its appearance, from the press of Lindsey & Blakiston. This book has been the labor of a good part of the professional life of Prof. Harris, and from a small practical treatise, as it appeared in the first edition, has now become the most complete and valuable system of dental surgery which has ever been published. Dr. Harris has sought to keep up with the advances made in the science and art of dentistry, and to embody every thing new in his different editions as they have appeared, until the work has now become swollen to over eight hundred pages ; but he has not yet conquered his prejudices in regard to amalgam. Hear him—

"It (amalgam) not only readily oxidizes in the mouth, turning the teeth black, and hastening rather than preventing their destruction, but it also, when used in any considerable quantity, is apt to exert a deleterious effect upon the alveolo-dental membranes, gums, and other parts of the mouth."

Now, we venture to say, that there is not one word of truth in the whole of the above paragraph. "Readily oxidizes" ! we have seen

numerous instances where amalgam has been in teeth from five to ten years, and yet the scratches made by the instruments which smoothed it, when in a plastic state, could be distinctly seen. It never oxidizes except in very impure mouths, and then much slower than tin foil. "Turns the teeth black"! it never turns living healthy teeth black, if made of pure materials, as thousands of teeth in and about New York abundantly testify. "Hastening rather than preventing their destruction"! we have seen many teeth in the most difficult positions to fill, which had been preserved longer by it than we ever saw such teeth preserved with gold. There are teeth in New York filled by the Crawcours *seventeen years since*, which are sound now, and bid fair to continue so seventeen years longer, and the cases of dead ulcerated teeth are the only ones we ever heard of where the amalgam had "exerted any deleterious effect upon the alveolo-dental membranes, gums or other parts of the mouth." Would not gold have done the same? Dr. Harris should correct this part of the work, and not continue an error because it was so put down "in the first edition."

Considerable addition has been made to this edition. One very important chapter on the manufacture and mounting of block-work, which is worth, to the mechanical dentist, the whole cost of the book. The method of Dr. Wm. M. Hunter for uniting single gum teeth into continuous blocks, forms the subject of another chapter, and still another describes the manner of inserting artificial teeth on bases of block tin instead of gold: besides these new chapters the whole work is enlarged by additions and new cuts, making the descriptions in most cases as full and explicit as could be desired. The present edition, in many respects, is superior to any former one, and should be in the library of every dentist.

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### BROWN'S DENTAL HYGEA.

The second number of the "Semi-Annual Dental Expositor" has come to hand, and contains the poem of "Dental Hygea," written by S. Brown, and dedicated to his brother, several years since. This poem, though less pleasing, and never so popular as *Dentologia*, nevertheless contains much good instruction, and "all done in (blank) verse." The four succeeding numbers of the Expositor will contain Dr. Brown's "Treatise on *Mechanical Dentistry*, published several years ago, now thoroughly revised, adapted to the present improved condition of the art, and accompanied with colored engravings."

# DENTAL RECORDER.—EXTRA.

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## HUNTER'S REVIEW OF HIS REVIEWER.

It is very evident to me, from John Allen's *last*, that he will not enter suit against me for infringement, but content himself with making false claims, whining for sympathy, and depend upon *threats* to frighten the poor, dear, timid dental public into paying tribute to him for an article worthless as himself, unless the *teacher* during his eastern peregrinations has succeeded in securing talent that has improved his material; certain it is, the *patent formula* and likewise the "*French clock shade and wedgewood mortar*" formula, has failed in this section of the dental world.

However repugnant to my feelings it may be to continue a controversy with a man of his calibre, I still feel that it is a duty that I owe to myself and the position that I have taken through principle, to expose the pretender and show the vile tricks that have been resorted to, to give an appearance of validity to his claim.

Having proven him guilty of wilful and deliberate falsehood in the matter before the American Society, by the aid of his own printed vindication and the records of the patent office, and many others that might be instanced, I shall not take notice of any assertion depending on him alone for foundation.

His analysis of my motives in giving what he facetiously calls my third set of formulas, amuses me exceedingly. Jealous of *him*—his *broken glass and mortar*—heaven save the mark. I want Gabriel to blow his trumpet when I have any such feeling against one who has done so little to be jealous of. Jealous, indeed my feelings have never risen above contempt.

The dental public will please recollect that in publishing any formulas before my last, I stated emphatically that, although worthless for dental purposes, I believed them to be better than any that Allen had produced at that period, and time has proven the correctness of my belief, for I can now refer to at least twenty cases made by Allen or his pupils during the last year, that have failed entirely, and that too with the aid of backing, and if need be I have no doubt that I could instance fifty cases. So much for the highly *scientific* compound of *French clock*

*shade and broken wedgewood ware*, as it reads in some of the (*patent?*) receipts that it took years of toil, a mint of money, rivers of lard oil, and a thousand sleepless nights to produce.

The publication of his patent formulæ by me was to show what I can prove (and I defy him to give the opportunity,) that it is almost identical with the one he bought from Steemer, and farther that it is useless.

As an evidence of my honesty of purpose in publishing my method I will state that Dr. B. F. Smith, Allen's accredited agent, called upon me and made an offer of one thousand dollars if I would suppress it, (it having been announced in the Recorder that I designed publishing) with a further offer of a much larger amount, if I would so blend my system with Allen's that it would be covered by the Letters Patent, both of which offers I refused—nor is it the first time I have been approached. John Allen himself, having requested an interview with me, proposed that one or the other of us should retire, and the profits be divided; but I would not compromise myself by any association with him. I have been approached *coaxingly, pecuniarily, threateningly*—the first I despised, the second I spurned, and the third I laugh at, as much as I do at the misconstruction of my language in what he is pleased to call his review. I confess it would annoy me coming from almost any other source. It could hardly be expected that he should understand the meaning of the various sentences of my advice, although I think it will be admitted that they are couched in tolerably good English.

He evidently thinks he did a good thing when he misconstrued me into saying that I perfected the tooth body as used by Jones, White & Co., but still, if he will take the trouble to enquire of Mr. White, he may find that I did have something to do with it—and furthermore, if he will get a friend to examine for him he will find that I have endeavored to create no false impression, the misconception is in his own addle-pate.

The little history of platina as applied to dental plates, has evidently disturbed the *professors'* equanimity. I think it susceptible of proof that he only got that metal to experiment with after he discovered that I was using it, and I boldly reiterate my assertion, that platina as ordinarily applied or used by him and his pupils, is worthless for dental plates. Knowledge of what had been done in times past, and common sense dictated my opinion, and time has proven the correctness of my judgment, as will be readily admitted by any candid dentist who has

inserted half-a-dozen cases that have been worn as many months. It is true Allen does not claim platina in his specification, but he has done so privately and in his learned essay on "*linear dilatation*" at the *boiling point of water*, where he speaks of the various metals that he had tried for plates, antimony, brass, copper, lead and zinc included, he profoundly exclaims, "from the metals above named, *I select platina.*"—Pro-di-gi-ous !!!

The double plate, as described by me, I have never yet had to yield when I have used the formulas published in "A New Method," &c., by myself. I have had many cases to reconstruct, but never one where the formulas have been used and the precautions taken as there laid down.

How preposterous that John Allen should accuse me, a practical workman in the plastic department of dentistry, of having acquired a knowledge of any material from him, a dabbler—a mere mixer of putty, glass, and broken china—a hap-hazard experimenter, who is just about as likely to produce a practical result unaided, as one is to draw a prize in a lottery, the chances of which, I am told, are about equal to that of being struck by lightning.

My mention of Dr. Wildman was made from simple justice, possessing as I do, a willingness to give credit where credit is due, even though I may consider that I have already given a quid pro quo.

In reference to the false position in which he has placed Dr. Brown, I have something to say hereafter. I now reassert what I have before stated, that the patentee did not produce a single specimen of what he calls his improvement, until months after my work had been described to him by Dr. Brown, and that the work for which he has got a patent, is but a feeble imitation of what I had produced previous to his entering a caveat, which allowed him to experiment, as the formula could be altered at any time previous to granting the Letters. But I will pass this until I approach the end of these few remarks.

An effort has also been made in the "Review of Dr. Hunter's third set of formulas," to make further capital out of Dr. Brown, (poor fellow, how like a shuttlecock he is) by our worthy D. D. S., which effort may be taken as a fair specimen of the veracity of the aforesaid Doctor in Dental Secrets.

He states that Dr. Brown testifies that he was cognizant of the fact that he had been experimenting for a number of years, and farther that he testifies that he (Allen) was in the habit of getting material from him (Brown) with which to conduct said experiments. Not content with

putting him in one false position, he now makes him declare two facts that are not apparent in his testimony. Examine Dr. Brown's note, and if you can make it appear, reader, I care.

I will here state what I have often before repeated, that I will show work of my present style, (attested work, mind you,) that was made months before he entered a caveat, and will again make an offer that I made to him publicly more than a year ago, viz: I will give fifty dollars for every case of his improvement that he will show in the mouth of a reputable individual, inserted in the year of our Lord, eighteen hundred and fifty. What terrible fellows Hunter and his clique must be according to John's showing, willing to resort to calumny and falsehood, then knock a man (?) down, and rob him of—of his invention.

I dislike very much to *crawfish*, but for once in my life I am compelled to do so, and that too, because I feel that I have done injustice. I stated that the Miss. Valley Association of Dental Surgeons, declared *at sight* in favor of what was called his invention, but must, with a promptitude that I have ever admired in others, when convinced that I am laboring under a wrong impression, "back out." I hasten to make the correction: It was at *one days sight*, as the "worthy brother" has clearly shown—had the draft upon their credulity been drawn at a longer date, I think that even *they* would have suffered it to go to protest.

I still think, however, as I did about the "unfledged novices and the sixty dentists," the failure of the work in these parts show that my judgment of what is needed for a denture is superior to all, the Professors included, but I take no great pride in that. How about those *tenpenny nails?* What is the price of *hickory nuts?*

Reader, excuse me if I have not touched upon many points, that you may think require notice from me, but remember the determination I started with of not noticing any thing depending upon John Allen alone for foundation—nor shall I undertake here to argue the validity of the Letters Patent, or to explain to him what I have claimed, or to show him that he *did* understand what was described to him, it would be too great an undertaking; neither to argue with *him* what is the best method of supplying a denture, but will dispose of the accusation.

Dear John, enter suit, and I will prove every one of them, and give in testimony to prove my last accusation your last article. Was the little story I told "a weak invention of the enemy."

I will now return and endeavor to show the false position in which

he has placed Dr. Brown. The profession very likely do not recollect that in June, 1848, Levett exhibited a specimen of his *enamelled* plates to the New York Society of Dental Surgeons, (not his patent varnished plates) and if I am correctly informed, with the following claim as to its advantages, "a perfect imitation of the gums, roof and interior of the mouth, which completely disguises the setting of artificial teeth," and this was announced in the N. Y. Dental Recorder.—

"On or about the 24th day of October, 1849," Mr. Englebrecht (Levett's agent,) called upon John Allen, and it is reported, sold him the exclusive right (secret) to use Levett's enamel in Cincinnati, for a considerable sum of money.

"In the winter of 1849-50," (mark you), G. Miner Hatch, an intimate friend of Allen, employed him to supply a few teeth in the front of his upper jaw, which Allen did in a workman like manner, as is proved by Mr. Hatch's certificate (how unfortunate that other work done since in the same style has failed). After the completion of this piece of work for Mr. Hatch, Allen took *Hatch to Brown*,—for this is the very case he speaks of in his note—and of course the doctor thought it very handsome. *It was work identical with Levett's*, being teeth mounted on ordinary gold plate, backed and soldered as usual, and an enamel (Levett's?) flowed beneath and around the teeth.

*In the year 1851*, John Allen conceived the brilliant idea of uniting teeth to each other and the plate by means of a fusible silicious cement, without the aid of backs, (a touch above the vulgar,) and enters a caveat for the same, and in November of that year, writes to Dr. Brown to know when he first saw his improvement in the mouth, the doctor, not being a practical dentist, answered as to the time at which he had seen the Hatch job, which was the only piece of work of John Allen's, of any description, that he had ever seen in the mouth, and Allen so falsely places the note that it is made to convey the idea that it was done in the (now) patent mode.

*I have a note* now in my possession, from Dr. Brown in answer to a few interrogatories by me, dated Dec. 15, 1851, in which he emphatically states, that up to that time he had not seen a piece of work in the mouth upon John Allen's improved method.

If the balance of the affidavits are no better than those of Hatch and Englebrecht, I would advise John to light his cigar with them, or appropriate them to the same useful purpose that Lord Sanwich did the apology of Mr. Eden.

WM. M. HUNTER.

## THE NEW OPERATION ON EXPOSED DENTAL PULPS.

In order to put our readers in possession of all the facts relative to the invention of the operation, by some called Hullihen's, and by others Miller's operation, we publish the following extract from Dr. Miller's second article in the Boston Medical and Surgical Journal, to which we alluded in our last number.

"An examination of the "documents" referred to in last week's Journal (Nov. 3d), shows that, 'in the year 1848' Dr. Hullihen *intimated* to Dr. Cone 'that he was engaged in making some experiments and observations in relation to this feature of dental practice'; but did not inform him, or any one else, it would seem, what those experiments and observations *were*, until 'during the winters (winter ?) of 1850-51,' previous to which time I had deposited a written description of the operation instituted by me, with my legal adviser in Boston, N. S. Dow, Esq. —had communicated the modus operandi to Drs. Flaggs and Eastham, dentists of Boston; to Dr. S. Tracy, physician, of Worcester, now of Windsor, Vt.; and to Dr. J. W. Smith, of Northampton, now Bridges & Smith, dentists, Brooklyn, N. Y., five in all, before Dr. Hullihen had divulged his secret to *any one*. I am, therefore, relieved by Dr. Hullihen himself from the possibility of having derived my information from him on the subject, from the fact that he *suppressed* it even from his confidential friend, Dr. Cone, till 'during the winters of 1850-51.' It must be apparent, then, to every unbiased reader, that what I have written and said upon the subject, has been without any knowledge that he was pursuing a similar course. Very respectfully,

"Worcester, Mass. Nov. 5, 1852.

S. P. MILLER."

*Letter from Dr. Cone.*

Baltimore, Dec. 17, 1852.

TO THE EDITORS OF THE NEW YORK DENTAL RECORDER.—Gentlemen: The contents of the November number of your Journal, relative to Hullihen's operation for exposed dental nerves, requires me to solicit the republication of an article, which appeared over my signature in the Boston Medical and Surgical Journal of the 15th inst., together with the following additional letter from Dr. J. W. Gally.

Yours, respectfully, &c., C. O. CONE.

Zanesville, Ohio, Nov. 22, 1852.

DR. S. P. HULLIHEN.—My Dear Sir: Yours of the 10th inst., asking me to give a statement of what I know concerning an operation recently described in a report read before the American Society of Dental Surgeons, and then styled "Hullihen's operation," was received by due course of mail.

In the autumn of 1840, in your office and under your instruction, I commenced the study of Dental Surgery. I remained in your office until the spring of 1852.

During that time I have heard you frequently relate the origin of the operation as mentioned in your letter to Dr. Cone. I saw you per-

form the operation soon after I entered your office as a student, and again and again during my stay with you, and have been shown cases where the operation had been performed by you previous to my time in your office.

Youas, &c.,

JAMES W. GALLY, Sur. Den.

*From the Boston Med. and Sur. Journal.*

*Hullihen's Operations for Exposed Dental Nerves.* To THE EDITOR, &c. Dear Sir.—The unfairness of the whole of Dr. S. P. Miller's article relative to Hullihen's Operation for Treating Exposed Dental Nerves, in your Journal of Nov. 17th, compels me to seek an opportunity through the same channel to reply, so far as the article relates to priority of discovery.

I have nowhere furnished Dr. Miller with the inference that Dr. Hullihen had no evidence of the treatment of exposed dental nerves by his operation previous to the winter of 1850—51; but on the contrary, the whole tenor of my paper published in your Journal of Nov. 10th, contradicted any suspicion that might arise, that Dr. Hullihen concealed this operation, until he had filed a "*written description*" with his "*legal advisers*," or for any sinister purpose. The attainments and eminence of Dr. Hullihen, as a dentist and surgeon, would also not only forbid the probability of his harboring professional secrets, but would lead to the conclusion that this operation, to which he attaches so much importance, would, early in its discovery, be made the subject of scientific inquiry and debate, with such gentlemen of medical attainments, as he most frequently met. In confirmation of this, I append the following letters which most conclusively establish the claims of Dr. S. P. Hullihen, which have been assailed by Dr. Miller.

Wheeling, Nov. 20th, 1852.

DR. S. P. HULLIHEN. Dear Sir,—In reply to your request, that I should state what I know in relation to your performance of an operation to relieve or prevent the pain of exposed dental nerves, which operation is described in Dr. Cone's report to the American Society of Dental Surgeons, and called by him "*Hullihen's Operation*," I will briefly say, that you have performed the operation three times upon my own teeth; *first, in the summer or fall of 1846; second, in the fall of 1850; and third, in the summer of 1852.*

I may further state, that for the last six years and a half, our offices have been in the same building, and before that, for several years they were very near together,—and that from before the time you performed the first operation on me, I have through your invitations, had frequent opportunities to witness the performance of the operation, as well as to examine cases in which the operation had previously been performed. I have also on several occasions, conversed with you in regard to the probable explanation of the phenomena produced by the operation, which operation, singular as it may appear, prevents pain in a tooth, although the plug may press firmly upon the exposed and tender nerve.

Very respectfully, JOHN FRISSELL, M. D.

*Alleghany city, Pa., Nov. 13th, 1852.*

DR. S. P. HULLIHEN. Dear Sir—In answer to your letter of the 14th inst., inquiring what knowledge, if any, I possess in relation to the operation of drilling into the nerve-cavity of a tooth, called in Dr. Cone's late report, "Hullihen's Operation," I beg leave to say that I entered your office as a student in the spring of 1846, where I remained for three years; that even during the first part of my pupilage, I witnessed the operation in question by you, several times, and since my location in this city in 1849, I have been performing the operation with entire success. Very respectfully yours,

DANIEL BISOL, *Sur. Den.*

*Pittsburgh, Nov. 18th 1852.*

DR. S. P. HULLIHEN. Dear Sir:—Your letter soliciting a statement of what I knew respecting an operation upon exposed dental nerves, particularly described in Dr. Cone's last report to the American Society of Dental Surgeons, under the name of "Hullihen's Operation," reached me this morning. In reply, I have only to state, that I was a student in your office from the autumn of 1846 up to 1850; that I had frequent opportunity of seeing you perform the operation referred to; that you taught your students to esteem it as one of the most valuable operations in dental surgery; that you performed the operation upon one of my teeth, and gave me the opportunity, while in your office, to perform it upon others.

Yours, respectfully,

W. F. FUNDENBERG, M. D. Dentist.

Other equally satisfactory proof could be forwarded to you, and if the testimony of unprofessional individuals was to be taken, a score of similar letters could be offered to sustain the claims of Dr. Hullihen.

I must decline being responsible for Dr. Miller's obtuse mental faculties; but will assure him, that the gross piracy and plagiarism, which, it would appear, his own guilty consciousness has forced him to *publicly deny, before publicly charged on him*, shall be most fully discussed in a dental journal, agreeable to his not very courteously expressed wish.

*Baltimore, Nov. 26th, 1852.*

C. O. CONE.

Dr. S. P. Miller has left with us letters from N. T. Dow, Esq., J. F. Flagg, M. D. and C. Eastham, M. D., of Boston, Steven Tracy, M. D. and George S. Sterns, Dentists, of Worcester, J. W. Smith and M. K. Bridges, dentists, of Brooklyn, N. Y., certifying that Dr. Miller communicated his invention and successful experiments to preserve the vitality of exposed dental pulps, at various times from August 1850 to Dec. 1850.

Unless Dr. S. P. Miller can show earlier dates, or set aside the testimony of Dr. Hullihen, we must concede to the latter the priority of invention; for those who know Dr. Hullihen best, believe him to be a gentleman of veracity, and have no doubt but what he has been successfully performing his operation upon exposed dental pulps since 1846, as certified in the letter of Dr. John Frissell. Why has a knowledge of it been kept so long from the dental profession?

# NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of

SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

VOL. VII.

JANUARY, 1853.

NO. IV.

## ANATOMY AND PHYSIOLOGY OF DENTINE.

An Essay read before the American Society of Dental Surgeons, convened at Newport, R. I., Aug. 1852.

BY J. DE HAVEN WHITE, M. D., D. D. S.

*Mr. President and Gentlemen:*—The subject which I have chosen for the present essay is the *Anatomy and Physiology of Dentine*.—Anatomists are in the habit of dividing a tooth into three parts, viz : A *body*, a *neck* and a *root*. The *body* is that portion which appears above the gum. It is protected by a semi-transparent crystalline and insensible substance, the *enamel*. The *neck* is embraced by the gum; is about a line in breadth, and intervenes between the cessation of the enamel and the margin of the alveolus. The remaining part is the *root*, which articulates by the *gomphosis* articulation, with the alveolar process.—There are three different tissues entering into the composition of the structure of a tooth ; two of these may be considered peculiar to this organ, viz : The *Dentine* or tooth substance which forms the *body* and *root*, and the *enamel*, which invests the *body* of the tooth. The third tissue termed *cementum*, and by some *secondary dentine* forms a thin layer, which invests the *root* of the tooth, from its *neck* to the extremity of its fang, where it is thicker than at the *neck*, and as age advances, it is deposited upon the surface of the dental cavity. This deposit commences at the upper part of that cavity, and gradually increases with the years of the individual. In very old persons it so completely fills up the dental cavity, as to leave behind no rudiment of its previous existence.

The arteries which supply the teeth, have their origin from the *internal maxillary* branch of the *external carotid*, and the veins, by which the blood is returned from the teeth, after following the course of the arteries, form the *internal maxillary vein*, which terminates in the *external jugular*.

The nerves which supply the teeth with general sensibility, are the

*fifth cerebral nerves*, commonly called the *fifth pair*. Every tooth has within its body a cavity, called the *dental cavity*, which is very similar in shape to the class of teeth it occupies, being larger in the body, and narrowing off as the root diminishes, terminating in a capillary foramen at the extremity of the root. This foramen gives passage to the blood-vessels and nerves composing the *dental pulp*. This pulpy substance is enveloped with an exceedingly delicate and vascular membrane, which is a reflection of a similar membrane, covering the external surface of the root, which membrane is also the production of a membrane called the *periostem* of the *maxillary bone*. There are, therefore, 1st : The maxillary periosteum, which lines the socket of the tooth ; 2d, an external periosteum of the root ; and 3d, an internal periosteum, lining the dental cavity ; the two latter membranes in health, perform similar functions, namely, that of nourishing the bony substance of the tooth.

*Structure of Dentine.*—According to recent microscopical observations, dentine or tooth substance is composed of two distinct parts, “*Dentinal tubes*” and a uniting medium—an intertubular tissue. The tubes have distinct parieties, which nearly or quite equal their calibre, and although usually empty, yet sometimes, even in healthy dentine, appear to contain a minutely granulated substance. Their arrangement is radiated, the centre of radiation being the pulp-cavity.\*

“ Each tube commences on and contributes its share to form the walls of the pulp-cavity, from which point it advances in an *undulating* course towards the surface of the tooth ; the general direction being nearly rectangular with the surface from which it started. If a single tube be traced through its whole length, it will be found to have made two or three large bends, and in addition to these, which are called the primary curves, a vast number of small undulations ; these latter are termed the secondary curves.”

“ In their course the dentinal tubes give off branches, and these, meeting with others of similar character, anastomose, and thus form frequent connections throughout the whole substance of the tooth. The nearer the tubes approach the enamel, or the cementium, the more frequent are their branchings, till at last they terminate either by anastomoses with adjoining tubes, or pass into the external structures, or else terminate in a dilatation—or become so extremely minute, that they are lost to the sight.”

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The foregoing description may be considered a general outline of

\* *Tomes.*

the dentinal tubes, subject, however, to many modifications in different parts of the tooth, as for instance : " The coronal tubuli suffer but little diminution in size, till they divide, and then the branches conjointly are larger than the parent tube. Sometimes, indeed, two tubes unite near the enamel, and from the larger tube so formed, two or three minute ones are given off." And the terminal branches, having arrived at the line of junction between the dentine and enamel, are lost, or recurve and anastomose with contiguous tubes, or pass across the line of junction into the enamel, or else end in a dilated extremity near the surface of the dentine. " In the tubuli which occupy the neck of the tooth, instead of pursuing an uninterrupted course, till within a very short distance of the termination of the dentine, and then dividing into secondary branches, like those of the crown ; the tubes of the neck give off during the latter third of their course, numerous fine hair-like branches, visible only under a very high magnifying power." " The parent tube at the same time, gradually decreases in size till it is no longer traceable." In the fangs of the teeth, the anastomoses between the tubes is far more general and frequent, than in the crown, and their distribution much less regular. " There is considerable discrepancy with regard to the size of the dentinal tubes between different observers ; some estimating them at from the  $\frac{1}{1000}$  to the  $\frac{1}{4620}$  of an inch in diameter. That there is a great difference in different specimens, and even in different parts of the same specimen, there is not the slightest doubt. At present, the dentinal tubes and cells, and the pulp-cavity, have alone been described as existing in the dentine ; but, in addition to these we have, in many instances, canals for vessels traversing the tissue, just as we have the Haversian canals perforating bone."\*

Frequently after extracting a tooth, I have enlarged the foramen at the apex of the fang, with a drill, sufficiently to insert a strong metallic plug and then upon forcing an instrument into the pulp-cavity, the blood contained in it would be observed to escape from numerous pores over the fang of the tooth, proving that there are more than one point of entrance and exit for blood-vessels in the root of a tooth, call them what you may. " The dentine is, in some animals, in all cases vascular ; the teeth of the walrus offer an example, as do those of the kangaroo and the rabbit." The structure of the enamel is very simple, it is composed of semi-transparent fibres, placed side by side and closely united. Their

\* Tomes.

form is an approximation to a six-sided prism, and tolerably uniform, being from the  $\frac{2}{1000}$ th to the  $\frac{3}{1000}$ th of an inch in diameter, and are held together by a membrane, called enamel membrane. "The cementum is considered, by different observers, as being similar to osseous tissue,\* and highly vascular."

The foregoing hasty and limited description of the tooth and its structure, will be considered sufficient to understand its *physiological* condition, as is observed by Mr. Tomes: "That osseous and dental tissues are, in form and arrangement of their cells and tubes, very closely allied. But the relations of their ultimate tissues are yet closer; for dentine and cementum, and probably enamel, are built up like bone, of more or less spherical granules, the difference in the tissues being in the arrangement of the granules, and in the relative quantity of earthy matter with which they are impregnated." Chemical analysis shows a very close alliance between their organic substances, 28 per cent. in dentine, and in bone 33.

It is clearly established that the Dentine is tubular in its structure, and that it receives a supply of nutrition in consequence, there can be but little doubt. I have very frequently broken open numbers of teeth after extraction, and taken out the pulps, weighed them, and exposed them to a heat ranging from 90 to 100 degrees for several days, and then on weighing them again find that teeth from young persons, say 20 years of age, in 100 grs. lose 16 grs., and one batch of 100 grs. lost 12 from older individuals; and upon soaking in common water for one week gained 10 grs. again; taking advantage of this fact, I placed a number of teeth in the tincture of red sanders, some after being dried, and some before, and in a few months they became tinged with coloring matter, as the accompanying specimens will show. I have referred to this latter experiment in a paper which I had the honor of reading before the Pennsylvania Society of Surgeon Dentists, in June, 1846; and since published by order of the society in Stockton's "Dental Intelligencer;" and some of these specimens which have been in tincture for years are so highly tinged that were it not for the shape of the tooth, it would scarcely be detected as tooth substance. That the coloring matter can enter as well from the external surface of the tooth is proven in the following manner: take a perfectly sound tooth, drill the foramen at the apex of the root sufficiently large to receive a strong metallic plug, then place it into the tincture, and it will become highly tinged also, but not

\* Tomes, Goodsir and others.



in as short a time as if the dental cavity were also exposed to the action of the fluid. I believe I have the honor to be the first to have obtained the complete infiltration of the Dentine with coloring matter, of a completely formed tooth out of the body. This experiment explains the cause of the blueness of the teeth after the destruction of the pulp; the decomposed pulp is absorbed, or when it disappears, the foreign substances which enter the dental cavity through the cavity of decay are also absorbed; it also proves the injurious consequences of a too frequent and too long an application of poisons to teeth to destroy the pulp. In treating toothache, the poisons are absorbed by the tubuli, and are brought in contact with the external membranes, and produce inflammation. The accompanying specimen shows the enamel to be slightly susceptible to the effects of coloring matter also, and the extremities of the fangs less so than the body of the tooth. That the teeth could not be imbued with coloring matter when once formed, has been heretofore held as conclusive evidence that the tooth substance was devoid of vascularity, by the most eminent writers—*Hunter, Horner* and many others.

The experiments of Mr. Hunter, of feeding growing animals upon a colored diet, with which you are doubtless familiar, producing a layer of discolored tissue, without effecting that already formed, and which experiments Professor Horner asserts were verified by his own observation, proving that the tissue already formed is not vascular, is by no means satisfactory to my mind; they merely prove that the teeth are more susceptible of being tinged with coloring matter while forming than when once formed. Neither is a suspension of the colored diet for a few weeks, in order to produce a layer of white and a layer of red, (which twelve months, perhaps, would wholly obliterate) conclusive. The time, “a few weeks” in so dense a tissue, where the circulation is feeble, is not sufficient to change wholly its character. Again, the coloring matter must be a foreign substance; and that it remains there, does not prove that a “commutation of nutricious particles” is not constantly going on around it; for, if we reflect, that coloring matter of various hues and shades, in the form of the well-known India ink, is constantly being introduced into the skin, where we are quite sure a very rapid change of “nutricious particles” is going on, at all times, and does not remove during a long life, the most delicate devices, which are frequently made there, the whole argument falls at once to the ground. It is asserted that the red blood globules are too large to enter the dentinal tubes, as the average size of a blood globule is  $\frac{1}{3000}$ -th

of an inch in diameter, and the dentinal tubes  $\frac{1}{4620}$  th. It is well known by dental practitioners, that if the dental pulp be partially destroyed by some corrosive agent, that the violent inflammatory action established thereby, induces a red tinge in the body of the tooth, or in a single root, as the case may be, in which the inflammatory action would seem to have been greatest. The accompanying specimen will clearly illustrate this fact; it is a case where arsenious acid was applied for destroying the pulp, but as the tooth excited considerable pain some days after, it was extracted, when its present appearance was observed. It will be seen that the root most discolored, is the one opposite the point of the exposure of the pulp, and that the one most distant, the palatine, is of the natural appearance. Injuries of the dental pulp without the application of any corrosive agent, will induce the same appearance of the tooth substance. I have proven by repeated experiment, that to excite bleeding of the pulp, and then plug the cavity of decay, that the whole substance will become tinged with red; whether it is by the passage of the blood globules entire, or merely by the infiltration of their coloring matter, after they are disintegrated, I am not able to decide; but whether the tubuli are too small to receive blood globules or not, does not to my mind, seem of great physiological importance; but that they have not the 'liquor sanguinous' circulating through them, as other white tissues have, is of great moment. To prove this point, I will relate one single case, which I observed, about seven years ago. A Mr. T., a most intelligent gentleman of our city, called upon me to have a front tooth plugged which was very much decayed; it was of very large size, and translucent, and very nearly decayed to the nerve. After having removed all the decayed matter from the tooth, and in looking carefully to see whether the pulp was exposed or not, I observed a dampness in the bottom of the cavity, which I wiped away, but which returned again as often as wiped away; seeing that it was oozing from the pulp cavity, I waited for a few minutes, and as much as a half drop accumulated in the cavity. I did not plug the tooth under such circumstances, but applied to the part some tannic acid, and in a few days the oozing ceased entirely, when I plugged the tooth as firmly as possible with gold; but in a few months I observed the tooth turning blue opposite the pulp cavity beneath the plug, which blueness spread from the centre of the tooth towards its surface, until it became very much discolored; the blueness spread from within out, and not from without in, as is the case when the plug is not solid; besides the tubal

M. M. O. L.

character of the tooth substance, there is another condition of it which will, perhaps, more fully establish its organization ; I mean the extreme sensibility of the dentine to the touch, and when acted upon by chemical agents, for which various explanations have been advanced with regard to the pain excited. I think but one explanation can be given, namely, that of *irritation by actual contact with nervous tissue*. With relation to pain by friction or to the touch, some contend that it is due to the tubuli being filled with a light serum, making a kind of column, the base of which, resting upon the dental pulp, renders it (the dental pulp) sensible of any impression which may be made upon its apex, which apex terminates beneath the enamel. I have, in many instances, endeavored to render this view of the case practical, by applying a heated instrument to a sensitive surface, believing that if the explanation were true it could be rendered useful by drying out the extremities of the tubes, and thereby lessen sensibility, but it has failed. Others allege that it is in consequence of the friction or concussion of solids against the dense fibres of which dentine is composed being communicated along them until it reaches the dental pulp and periosteal membranes ; again, others assert that it is the result of the actual contact of substances with nervous fibre, which is distributed in the dentine. The latter explanation seems the most plausible, which the following simple experiment will fully prove. Place an escharotic in contact with the exposed and sensitive dentine, no matter how distant it may be from the pulp and leave it there for a time, longer or shorter, as the case may be, remove it, and all sensibility will have gone from the surface in which it was in contact ; but cut down a little of the surface, and you will again find sensitive substance ; for instance : place a small quantity of arsenious acid immediately beneath the enamel, and secure it with some white wax for a few hours, and it will destroy all feeling on the surface ; but leave it a longer time and it will be absorbed by the tubuli and destroy the sensibility of the whole tooth substance, when it is clear that it only acts upon the organic part of the tooth, leaving the calcareous fibres as capable of communicating friction or concussion, as before ; if the structure of the tooth were at all broken up, by any such application, according to the first explanation, it would only render it more sensitive, as a greater quantity of fluid would then be absorbed.

Another circumstance which bears strongly in favor of the vascularity of dentine is, that during the absorption of the roots of the deciduous teeth, if the crown should be held in its place by the adjoining teeth,

or should not be knocked loose by chewing, when its roots are absorbed, that the pulp which had its share in absorbing the roots, now lays hold of the crown, after the roots have been absorbed, and carries the whole of its dentinal substance away also; a circumstance which could not be explained if the blood vessels stopped against the walls of the dental cavity, but, on the contrary, pass through to the enamel membrane; and again, under such circumstances, it requires a degree of force applied to the pulp to pull it away from its contact with the dentine; showing that it dips its vessels down into this substance. I have a specimen of this absorption with me. This peculiar absorption is not only confined to the deciduous teeth, but occurs to the adult teeth also; although it may be induced in the adult teeth by a different exciting cause than is concerned in the former class of teeth. Doubtless all present have plugged teeth when they believed that the pulp was not quite exposed but in time pain would set in, or they would find from discolouration of the tooth, that the pulp had become dead, or inflamed; and on removing the pulp there would be a distinct opening from the cavity of decay to the pulp-cavity, so large that if such opening had existed before the plugging had been done, it would have been observed. It would seem from this circumstance also, that the deposition of cementum, which is looked for to take place beneath a plug, where it nearly reaches the pulp, is very uncertain. If irritation is excited at all by a close proximity of decay to the pulp, it is as likely to provoke absorption as deposition of the cementum or dentine.

In conclusion, in the language of a recent writer, (Mr. Tomes,) "Strictly speaking, all tissues are in themselves extra vascular, that vessels do not permeate their substance, but pass only between their fibres, lamina, or granules, whatever be the structure of the tissues." "Taking the relative frequency of vessels in a tissue, as an index of the degree of its organization, teeth will be placed near the bottom of the scale, but different grades will be assigned to their three component tissues." "The cement, or tooth bone, will occupy the first; the dentine the second; and the enamel the third." It is a law of nature, that in passing from one form of organized matter to another no sudden transition shall be made, but that the individual changes shall be so gradual as to be almost imperceptible. This law we find beautifully exemplified in the gradual change of structure in passing from the *cement* to the *dentine*, and from the latter to the *enamel*.

## ON MATERIALS THE BEST ADAPTED FOR FILLING TEETH.

BY WM. ROBINSON, ESQ.

THE existing cause of what has been termed decay of the teeth, has long since ceased to be a disputed question.

In July, 1835, when the first edition of my work was published, and which has now arrived at a fifth edition, the subject of controversy was, whether the *cause* of the destruction of the teeth be attributable to inflammatory action, or to chemical agency. This is no longer a disputed question. It is now admitted by every practical and intelligent member of our profession, that the destruction of the teeth is occasioned by chemical agency, and *not* by inflammatory action. It is now clearly perceived that the attack upon the teeth is always made from without, and never from within, and it is equally clear, that the mischief never begins upon the smooth and level parts of the tooth, but is always found to commence in pits, fissures and interstices upon their surfaces—receptacles where the more liquid portion of the food are admitted and retained until decomposition takes place. The deposit having undergone this change, acquires a property and power, similar to an acid, of acting upon the phosphate of lime and animal matter, the two substances of which the teeth are composed. The result of this action is the destruction of the power of cohesion which previously existed between these particles, consequently the structure becomes changed from a state of crystallization into his component parts.

That this is the real cause of the destruction of the teeth, is clearly evinced from the very nature of the operations which have so long been proved effectual in remedying the evil. For instance, in using the file, our object is to remove the cavity or resting place where the food was retained, and by making a plain and smooth surface, no future lodgment can take place, and the mischief is arrested.

In filling the teeth, the object and principle is the same as in filing them : for the destructive matter is removed from its resting place, and permanently excluded by filling up the cavity firmly and securely with a durable substance that is not liable to corrode or injure the structure of the tooth, and the evil remedied. The consideration then is, what substances are the best adapted for this purpose ?

Pure and well prepared gold leaf is undoubtedly the best and the

most durable material which has yet been discovered for filling the teeth, and particularly so when the operation is performed in the early stages of decay, and before the slightest tenderness has been felt in the tooth. I should, therefore, recommend gold to be used in all cases where it is practicable, in preference to any other filling. But we have numerous cases which present themselves where gold cannot be used, and where an amalgam becomes a necessary substitute.

It too often happens that filling is neglected until decay has made considerable progress. The cavity having become larger, the surrounding walls thin, and the tooth so tender, as not to admit of the pressure necessary to condense the gold into a secure and solid plug without the risk of producing pain or splitting the tooth. There are also various cases arising from the position of the decayed parts, and the shallowness, or saucer shaped form of the cavity, where a gold filling would not remain, and where it becomes necessary to use an amalgam.

The consideration then is, what materials are the best to form this amalgam?

I have given much time and labor to the investigation of this subject, and after numerous experiments with the various metals have come to the conclusion, that gold, silver, platina and tin, in their pure state, are the best; because, I have found, in using them, either separately or combined, that they resist the acids of the mouth better than any of the other metals. An amalgam of these, however, cannot be formed without mercury; but the smaller the portion of it the better, so that there is just sufficient to unite and hold in permanent combination, the purer metals above specified.

The amalgams in general use, even those of the better class, which are composed of the metals above mentioned, contain a great deal too much mercury; and I shall presently show that the cause for this superabundance of mercury, arises from the incorrect proportioning of the metals and the improper mode of mixing them.

The method generally adopted in preparing an amalgam, is to combine the mercury at once with the other metals, so that the compound may be in a state of readiness for using; and when a portion is required, it has to undergo a process of heating and rubbing to bring it back from its crystallized form to a pasty state before putting it into the tooth.

Instead of adopting this method the mercury ought to be kept separate from the other metals, and only mixed with them at the time of using. This mode of mixing with the metals, rightly proportioned, will

produce a harder and more durab'e filling, and the metals will combine with one-third of the mercury required in the former mode of preparing the amalgam.

As an illustration of this fact, even in the better class of amalgams, I may refer to a paper that appeared in the Pharmaceutical Journal for March, 1850, on amalgams for stopping the teeth, by Arnold Rodgers, Esq.

"I have much pleasure," he says, "in communicating through the Pharmaceutical Society, a few remarks on amalgams, as well as the formula for the one I have used for some years, and although occasionally some specimens have come under my observation which seemed to possess qualities superior to the general character of amalgams; yet, on the whole, I have been satisfied with my own compound, not but that I think it may be improved upon; and, when leisure time will allow me I shall endeavor to profit by the hints of my professional brethren."

After a few remarks on various amalgams, Mr. Rogers proceeds to point out the method of preparing his own. And first, an amalgam is composed of silver one part, and mercury four parts. This amalgam of silver is to be united with an amalgam of gold, which consists of gold one part, mercury three parts. These are to be kept in separate boxes, and when used, the proportions are to be two parts by weight of the gold amalgam to one of the silver; thus making the amalgams, when combined, to consist of silver one part, gold two parts, and *mercury ten parts*. Then as to the manner of using it. "The two pellets had better be triturated thoroughly in a mortar before the compound is submitted to the flame of a spirit lamp; and I have observed," he says, "that for the better incorporation, it is necessary to submit it to the heating and trituration, in the usual way, three or four times. The cavity of the tooth being quite prepared for the reception of the amalgam, all the mercury that can be pressed out between the thumb and fingers should be so separated, and the compound immediately packed in the cavity."

Now I feel persuaded, that Mr. Rogers will agree with me as to the desirability of getting rid of a portion of this mercury; and I shall presently show that by using the same metals, with the addition of another, and by proportioning them and preparing the amalgam differently, we shall be enabled to dispense with *seven parts of this mercury out of the ten*.

Some dentists use an amalgam of palladium and mercury, which makes a firm and durable filling; but it becomes black in the tooth.

A few years ago, cadmium was introduced as a filling, and for a short time it promised well, and appeared to be an improvement upon former amalgams ; but after a few months trial it showed its defects and was very properly discarded. It neither retained its color, nor its hardness, for when acted upon by the friction of the opposing teeth, it soon wore away, and when not acted upon, it became, in parts, yellow as saffron ; with the disadvantage, also, of having a strong tendency to produce galvanic action in the mouth. Objectionable as this compound is, it still continues to be used, by a certain class of practitioners, under the title of " Parisian Filling."

There are various kinds of amalgams used by the same class of individuals, which contain copper, lead, bismuth, zinc, and antimony, all of which are bad.

To test an amalgam properly, is a work of time ; a few months is not sufficient, years of observation are required to ascertain its real character and to judge of its utility. Its introduction to the public, ought, therefore, to be the act of an experienced member of the profession ; for it becomes rather a serious matter, if we find that the filling we may have been using pretty freely for six or twelve months, upon the strength of another's recommendation, should turn out, after the manner of the cadmium preparation, a complete failure.

The amalgam which I am about to describe, contains nothing novel, so far as the materials are concerned. There are no new metals introduced ; they have all been used in different forms for many years ; but it is in the proportioning of them, and by a different method of preparing the compound, that I have been enabled of late years to get rid of two parts out of three of the mercury formerly required ; and this I consider to be an important advantage ; for as I have before said, an amalgam cannot be formed without mercury, but the smaller the portion required of it the better.

Since making this change, I have had ample time, upwards of three years, to test the merits of the compound, and can, therefore, speak practically of its utility.

The amalgam consists of gold, one part ; silver, three parts ; and tin, two parts ; and it is of the utmost importance that the metals should be pure—free from the smallest particle of alloy.

The mode of uniting the metal is, first to put the gold and silver into a crucible, and just as they are at the point of melting, add the tin, which requires less heat than the former.

When they become melted, but not over heated, pour them from the crucible; melt them a second time for the purpose of having them properly mixed, and then pour them into an ingot, of a shape the best adapted for reducing the compound into the finest powder.

The mercury is to be kept apart from the powder, and mixed with it at the moment the amalgam is to be put into the tooth.

¶ The mercury must be perfectly pure and the quantity required will be equal in weight to the powder; and here we get rid of *seven parts of the mercury out of the ten before mentioned.*

In mixing the powder with the mercury, the exact proportions of each can be ascertained to the greatest nicety, and by a very simple process, which will save time and material, and which, I believe, makes a firmer compound, than by using a larger portion of mercury and squeezing part of it out again.

A measure for the mercury may be made from a square portion of ivory; by drilling it in three holes, one may be made to contain four grains, the second eight, and the third, twelve grains. The mercury to be poured into either of these as more or less may be required to fill the cavity of the tooth, and by drawing the finger across so as to bring the mercury on a level with the surface of the ivory, the portion wanted is accurately obtained.

The measure for the powder is equally simple and convenient. It is a metal tube, with a handle attached, calculated to hold four grains, which is also got to a nicety by filling and then drawing the finger across the mouth of the tube, so as to make level measure.

The mercury should be kept in a small bottle with an India rubber tube attached to the neck of it, and the mercury is readily pressed through the tube into the measure. In this way the exact quantity of each of the metals is readily obtained.

The powder and mercury to be emptied from the measure into a small glass mortar, and rubbed till they become mixed. The compound is then to be rubbed firmly with the finger in the hollow of the hand, till converted into a paste, which, before hardening, allows plenty of time for inserting it into the tooth.

I have found this compound to be far superior to the former class of amalgams. It does not, like palladium, and some of the other metals that have been used, become black in the mouth. It retains its hardness and firmness of texture, and is not like the cadmium, liable to be worn away by the friction of the teeth.

Formerly, in fixing artificial teeth upon a gold plate, it was necessary to avoid bringing the gold in contact with a tooth filled with an amalgam; because a portion of the mercury entered into the gold and destroyed it, this evil is now remedied by the compound containing so small a quantity of mercury, which is held in permanent combination with the other metals, so that not a particle of it is abstracted by the embrace of a gold clasp. With these important advantages over former amalgams, it is also used with much greater facility.

From experiments which I have made during the last twelve months, I find that the quantity of mercury which I have named, can be reduced still further, and which, I believe, will be an improvement upon the present compound; but as I have before stated, more time and practical experience, to test the result of even this alteration, is desirable before taking the responsibility of giving it to the public.

THE SQUARE, BIRMINGHAM,  
May 1st, 1852.

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## TAKING IMPRESSIONS OF THE MOUTH WITH PLASTER OF PARIS.

BY C. A. DU BOUCHET, M. D., DENTIST.

The continuous success met with by dental practitioners, in inserting entire upper sets of artificial teeth upon the principle of atmospheric pressure, is, in our estimation, principally, or at least in the great majority of cases attributable to the almost universal use of plaster of Paris for taking impressions.

The origin of this beautiful process, although perhaps not very antiquated, is not known to us, nor do we remember having seen in ancient or modern works, a description of the modus operandi. Our friend and brother practitioner, Edward Townsend, some six or seven years since, advised us to make use of it, stating at the time that he had been very successful with it. Whoevr the originator of the process may be, we deem the thought a most happy one, and the author of it entitled to the sincere thanks of the profession.

Although it might seem, even to the very uninitiated, quite useless to undertake giving any hints or directions to accomplish this operation, the recollection of our first experiment with this article, and the similar result obtained at first at our suggestions, by other practitioners, bid us entertain a hope that a few words on the subject will prove acceptable to some at least.

As a general thing, if the manipulations are properly performed, the patient will prefer plaster to wax, on account of the cool and pleasant sensation imparted by the plaster. Moreover paramount advantages are easily secured by the use of plaster which cannot be obtained or expected from beeswax or any mixture of it with other ingredients.

*First.* A positively correct and reliable impression which can be preserved and used several times, if necessary to obtain duplicate casts of the same mouth.

*Second.* In the case of recent extraction of many teeth or abnormal tenderness of the gums, we avoid inflicting any needless pain upon the patient.

*Third.* A plate struck with a model obtained from a plaster impression, will hardly ever require being struck anew.

Impression cups are necessary, of shape suitable to receive and hold the plaster in its position. Messrs. Jones, White and McCurdy have been to much trouble in getting up various suitable sizes of an exceedingly neat, strong and convenient article for this purpose. We hope they will allow us, *en passant*, to return to them our thanks for this, one of the many favors they have extended to us and the profession.

In selecting a cup, it is best to have it somewhat larger than the gum, in order that the sides of the impression may be well supported, so as not to break in drawing out of the mouth.

We have always given the preference to very fine plaster, and our method for mixing it has been to mix it thin at first, and then to add more plaster in small quantities until we have it nearly of the consistency of whipped ice cream, or in other words, of such thickness as will allow to heap it up in the centre of the cup, high enough to reach the deepest part of the roof of the mouth. This mixing should be done promptly, for if the plaster be fresh and of good quality, no time is to be lost in introducing it into the mouth of the patient.

This is, indeed, the critical time; but we have found that by observing the following rule, we could almost always obtain a good and perfect impression, in fact, with more ease than with bees-wax in many cases.

The patient should sit *upright*, in an ordinary chair with a straight back, a large napkin pinned around the neck and another on the lap, the head is directed to be dropped on the breast, and the impression cup properly filled with plaster of suitable temper is then rapidly and gently introduced into the mouth, pressing it a little upward, and at the

same time imparting one or two slight backward and forward motions, so as to drive off the air which might be caught by the plaster, thus forming chambers which would spoil the impression.

Frequently, one minute will be sufficient time for the plaster to harden, and upon relaxing the gentle pressure supporting the cup it will be found to adhere as firmly as any atmospheric plate. We would prefer waiting a few seconds longer, still supporting the cup; when removed too soon, if projecting much beyond the cup, the plaster is liable to get broken, giving unnecessary trouble in mending.

Sometimes the adhesion of the plaster to the alveolar ridge will be found so great as to render it impossible to remove the impression without breaking it in a number of pieces; this is of no account if it is a good impression, which we can readily ascertain by replacing the pieces *in situ*.

A few trials, with these hints, will teach the operator how much plaster to use, how thick, &c., so as to enable him to get along with perfect ease to himself and patient.

Some persons might object to plaster on account of uncleanliness or some other reason, but when a patient is informed that this is the best plan to secure a perfect fit, his prejudices will at once be dispelled; besides practice will also teach the operator not to drop any plaster in the mouth, leaving no possible objection to its being employed.

Various contrivances might be adapted to the cups so as to introduce air between the gum and plaster, and destroy, in a measure, the adhesion, and facilitate the removal of the impression; but we apprehend that one of the causes of that adhesion is more than atmospheric pressure, and that it could not be overcome by the introduction of air. We mean that after the plaster of Paris has set, its affinity for water becoming very great, it absorbs all the moisture imparted by the salivary glands to the mucous membrane in contact with it, with the same avidity as the stem of a clay pipe does, that when applied to the lips will stick so close as to denude them of the cuticle. We have not the same difficulty to fear in the roof of the mouth, as the mucous membrane found there is of such thickness and strength as to resist the wear and tear of mastication, and gentle force suffices to remove the impression, which, even when broken, may be made perfect by adjusting the pieces.

Some practitioners have made use of plaster to take impressions for partial sets, but we confess that we do not think it safe, as the plaster in setting between the teeth, must, we fear, entirely preclude the removal

of the impression without injury to, and even the removal of some tooth or teeth.—*Dental News Letter.*

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## RISODONTHROPHY.

Elmira, N. Y., Dec. 30, 1852.

To the Editors of the N. Y. Dental Recorder:

I have noticed in the Recorder several articles relative to the operation of Dr. S. P. Hulihen, of Virginia, upon exposed nerves, and I am not a little surprised at the long and continued strife about *priority* in the discovery, about what may be found as far back at least as 1843, in a work upon Dental Surgery, by F. Maury. I say 1843, for the work was published in that year in *this country*. When written, or when the article referred to by Maury, taken from the *Revue Medicale*, was written, we know not now, but, in all probability, from one to more years previously. Now, to satisfy yourselves of what the *priority* of discovery is worth, just turn to page 165, at the bottom, and page 166, and read, verbatim et literatim, (in substance,) the operation so much talked about and so loudly lauded by our newspapers—lauded more in the publishing of Dr. H's. article, however, than by any learned remarks or extended research. This is not a *new* operation, and I am bold to say that nearly all of the older members of the profession have known and practised it long enough to find it ineffectual, except in some instances, and Drs., I ask, what tooth-ache remedy—what plan or practice can you use but what will be successful to a certain extent. Who has not seen tooth-ache cured by even breaking off of the crown in an attempt to extract the tooth. Surely, then, this may well be expected to meet with its proportion of success.

To witness the scrambling after what every one who has read works already in our libraries knows, is to me amusing and ridiculous, or ridiculously amusing. Of late, even in our little town, an article was published, in which a citizen claimed for one of the dentists of this place the same discovery, and knowing of its identity, I could but give the same publicity to what may come nearly upon plagiarism, from such as assert that they have discovered the operation. Plagiarism it may or not be, but the fact of such an operation being previously published, and but for a few years silently dropped—as are most of the new things so loudly talked about at first—and then blazed forth anew, seems marvellously like using other persons productions to talk up our own name.

I freely admit that Drs. H. and Miller may each have used this method and thought it a chicken of their own hatching, but I object to their making a claim to that which is so generally within the hand of every dentist.

I ask you to publish this as well to correct the error in the profession in this matter, as to relieve it of any further obloquy from the world when it shall find that we are so easily led about by the *seeming* wonders of here and there, a dentist who desires to give his *name* to the world. The *glory* of a notoriety so gained looks to me very much like a negative, however, for *positively* I can see no glory but that of using what he should have known was even under his own eye. Some may claim that the operation, of which Mr. Fattori is the reputed discoverer, is different from Hullihen's, but they must have a *will* to see, and therefore *think* they see what is not.

I have written familiarly and without study, in phraseology or great names, for this *newly* discovered *Risodonthropy* has so tended towards producing a dental nausea, that I have no appetite for further eatables of like description. I admit that some may think this article lacks dignity, as it does—and why should it not be permitted to lack the same ingredient which is so conspicuously wanting in the subject herein mentioned.

As some have had glory enough in showing forth their inventive genius in using what was long ago understood, *perhaps* by *themselves*, I propose, though temporarily forgotten, showing the profession that they are displaying ears somewhat elongated in talking so much about this newly named but well known operation.

Yours, respectfully,  
A. M. POTTER.

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The following is the extract which our correspondent refers to; but to our understanding, the operation here described is very different from that of either Dr. Hullihen or Miller. That of the former "consists in making a hole through the gum, the outer edge of the alveolar process, and root of the tooth into the nerve cavity, and then in opening the blood vessels of the nerve." The object of this operation is to preserve the pulp of the tooth, not to destroy it, and Dr. Hullihen expressly states, that the operation is not to be performed "where the nerve is more or less inflamed, in other words, where the tooth is aching." The original operation claimed by Dr. Miller, is much like the one described in the

following extract, the object of both being to amputate the vessels and nerves of the tooth, one (Dr. M.) drilling through the fang of the tooth and dividing the pulp, and the other by means of a "trepan" makes an opening, if we rightly understand the author, through the outer plate of the maxillary bone and divides "the dental nerve at the point where it enters the tooth;" though the words which we have italicised would seem to imply that the fang was also perforated. The object of the operation of M. Fattori, unlike that of either of the above, seems to have been to cure the tooth-ache, upon the principle "that whatever be the cause of pain, it will cease when we divide the nerve that supplies the part with sensibility."

We cannot therefore, see that the operation is the same as that of Hullihen or Miller, though it very naturally suggests the method of drilling to the nerve through the fang as being much less difficult than that of trephining the maxillary bone above the extremity of the tooth.—

*Ed. Recorder.*

"Before terminating this chapter, we will speak of another method of avoiding the extraction of the teeth, and which has been proposed by M. L. Fattori, which is found in the *Revue Medicale*. "This method is based upon the following principle, namely, that whatever be the cause of pain, it will cease when we divide the nerve that supplies the part with sensibility, or by any other means suspend its functions. Hence to destroy toothache we should discover means by which we may sever the dental nerve at the point where it enters the root of the tooth. This is what M. L. Fattori has succeeded in doing by means of a trepan, with the point of which he cuts the dental nerve. This surgeon, having for a long time given this subject his whole attention, and having examined a great number of teeth, became competent to determine in a majority of cases the precise location of each dental ramification; and by means of needles of various lengths and sizes, adapted to his trepan, he cuts the nerve *after having perforated very speedily and without pain the diseased tooth*, which, by this operation, becomes insensible.

"If it should chance to happen that the pain is not relieved by this operation, on account of the needle not coming in contact with the nerve, which it is known often varies its direction, he then has recourse to a second operation, in which he always succeeds."

"The idea of dividing the dental nerve at the point where it enters the tooth, is certainly very ingenious, and we congratulate M. Fattori on pointing out so novel a method of curing odontalgia. This operation, however, appears to us difficult to be put in practice; but if we add to this plan all of the modifications of which it is susceptible, it will, we doubt not, supplant the operation proposed by Mr. Fay. We may

indeed not be far from a period when extraction of the teeth, like many other operations, will be but seldom resorted to."



## FAIR OF THE AMERICAN INSTITUTE.

DR. ALLEN:—As I have not yet seen any notice of the exhibition of dental mechanism at the fair of the American Institute, I take the liberty of sending the following—

The specimens exhibited were quite numerous, and so far as simple workmanship was concerned, for the most part creditable to the exhibitors. The only things pretending to be new were a set of artificial teeth made on the plan of Dr. Allen, late of Cincinnati, and a lot of teeth filled by a new process, for which the operator claimed great merit.

There were the usual number of strictly fancy pieces, of great beauty of workmanship, but considered by the judges as unworthy of notice as dentistry. In the article of teeth for the use of the profession, there was no competition. In mineral blocks there was a beautiful specimen by a student of dentistry only seventeen years of age.

And now a few words in regard to fancy pieces of dental mechanism. The judges have, I believe, always set their faces against reporting them favorably to the managers. For the reason that generally they indicate nothing in regard to the true progress of dental art. These pieces may be, and often are, made by jewellers and other workers in gold, who know little or nothing in regard to dentistry. It would be therefore obviously unfair to give them the recommendation of the Institute to the prejudice of others who do far more useful but less showy work. The persons who exhibit at fairs *only* show pieces, can not reasonably hope for encouragement from practical examiners. While I would by no means speak disparagingly of those who have sent to the fair beautiful specimens of their mechanical skill, (although not adapted to the human mouth,) I would advise them, in all kindness, for the future to send only such as are fitted to the casts taken from nature, together with the first or original model. The dentist can far better exhibit his ingenuity and skill to the judges by copying some of his most irregular or difficult cases, than by the usual plain ones.

I observed in one case, what the examiners decided to be an attempt to impose upon *them*, and probably upon the public. I allude to the samples of filled teeth. These purported to be specimens of fillings in

natural teeth, such as the dentist claimed that he could insert in the human mouth; and he undoubtedly intended the public so to believe.

These fillings it was thought were only the castings of some fusible metal into the teeth when perfectly dry. They appeared to have been filed up and galvanized afterwards, and certainly presented a very good appearance outside, but to no *good* purpose, as they could not be inserted in the living teeth. The only purpose they could possibly serve, must be to delude the uninformed or unthinking visitors of the fair.

Yours,

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### DENTAL PERIODICALS.

We have received the first number of the "Southern Journal of the Medical and Physical Sciences,"—published bi-monthly at \$2,00 per year, at Nashville, Tenn. "Editors : Drs. Jho. W. King and Wm. P. Jones in the department of practical Medicine and Surgery ; R. O. Curry, M. D., Chemistry and Pharmacy ; B. Wood, M. D., Dental Surgery," &c.

The specimen number contains 72 pages of interesting matter connected with the above named subjects, several of them pertaining to our own profession from the pen of Dr. Wood. The typography is clear, and the whole done in a style that reflects much credit upon the publishers. We have always admired Dr. Wood, as a writer on dental subjects, and hailed his contributions, as among the best, to the current literature of our profession. And it affords us pleasure to know, that he has now so fine a field in which to exercise himself, in connexion with other able and distinguished writers. We shall look with interest for each successive number of the "Southern Journal."

There is nothing, which to our mind, more certainly and truly marks the progress of Dental Science in our own country, than the increase, and improvements of our dental periodical publications. The change in this respect, which we have witnessed within the last fifteen years, marks with peculiar distinctness, the rapidly advancing strides of our profession in the United States. We were a subscriber to the first publications of the kind in this country, and have been trying to keep pace with them ever since. And we are conscious of nothing which has given such a stimulus and tone to the spirit of our profession. We well remember with what feelings we welcomed the first numbers of the old "American Journal and Library of Dental Science," and with what a

hearty zest we devoured its monthly contents, and the pride we felt at having a Journal of such distinguished literary merit, as a vehicle of intercommunication between the dissevered and scattered members of our growing profession. That was a great thing in its day, and marked an era, in our history. But note the change--See now, the "American Journal of Dental Science" as it comes to our table once a quarter, loaded with matter, only suited to *strong digestive organs*. Mark its *portly dignity*, and "*Quarterly*" *sobriety*, as it quietly takes its place in our sanctum. Its sides pressed out with solid, and substantial matter, and its bold typography staring you in the face. Really, times have changed--If it was welcome formerly, it is doubly welcome now.

Then, there was the "Dental Intelligencer" Edited by Dr. Stockton, and published in Phila. We preserve a file of the old numbers, at which we cast an occasional glance, when we wish to refresh ourselves with some professional reminiscence, and recall the sense of avidity with which we seized upon it, as an additional contribution to our professional literary wealth. Next came the modest little "Dental Mirror" published by our old friend Bridges, of Brooklyn. This also added something to our "stock in trade." The "New York Dental Recorder," C. C. Allen Editor, soon made its appearance, and began to push its way into public notice, and is now assuming somewhat the gravity of age, yet we trust, free from its infirmities.

The "Dental News Letter" by Jones, White & Co., from a little fly-sheet, has grown in size, and real merit, until it has become a *permanent fixture*, and a welcome visitor, in almost every Dentist's office in the country, and is laden with some of the best productions that the profession can furnish.

The "Dental Register of the West" (which by the way, we have not seen lately, and we hope it is not dead) Edited by Dr. Taylor, comes as the representative of Dental Science in the great, and growing West. The Register has well sustained the reputation of its able Editor, and numerous contributors, and furnishes a lively, and hopeful prophecy, of the future development and growth of Dental Science and literature.

The "Dental Expositor" Solymon Brown, M. D., Editor, published semi-annually in New York, has clothed the various subjects of Dental Science with the drapery of a fervid, and Poetic imagination, and is designed more for popular, than for professional use.

And last, though not least, comes the "Southern Journal," whose

name heads the article we have just penned. A marked improvement in almost every respect has characterised the periodical literature in our profession within the last few years, and has strangely developed the resources of the profession, within that period. Men are reading vastly more than formerly, that which pertains to Dental Science, and the ceaseless contact of mind with mind, is sharpening the intellect, and driving the pen with increased velocity.

And the influence of these publications is felt in every department of the profession, stimulating our thought—spurring us to activity—arousing our dormant energies—enlarging our views—breaking down old prejudices, and exciting to a healthy emulation all that is noble, benevolent, and true. Pushing inquiry into the more recondite, as well as the simple, and practical, and greatly enlarging the sphere of professional influence, by means of organized and efficient instrumentalities. And lying as they do, at the very foundation of Dental Collegiate instruction, we cannot doubt, that they are destined to effect still greater changes, and improvements in the form, and method of professional tuition.

It may seem to our readers a trifling circumstance that a Journal professing to teach the "Medical and Physical Sciences," and leaping into adult existence with one bound, with a dignity and strength clearly pertaining to manhood, should be found to embrace our own department as a legitimate member of the same family. And that too, without any exhibition of conscious superiority. Here they nestle as closely together, as if they were triplets of the same birth, and reared by the same maternal hand. We say, it may seem to some, as a circumstance of no account, but we must regard it as a *significant* thing. And when taken in connexion with the establishment of Dental lectureships in Medical Colleges, and other signs of the times, we think it marks a new era in the history of our profession.

Perhaps the little cast off batning, so long disinherited, and disfran chised, having done so nobly for himself, is about to be restored to his forfeited rights, and forbidden immunities. And it may be, that the scattered branches of a somewhat numerous family are about to be called in, and peacefully housed once more under the old paternal roof.

For one, we rejoice at the prospect, however faint, of a family reunion. It is well to get together occasionally, and look each other in the face, and exchange friendly salutations—recognise each other as relatives, and then go about our business.—*Norwalk Ed.*

## PRESERVATIVE EFFECTS OF AMALGAM.

A correspondent who signed "the pledge," and voted to expell certain members, from the American Society, asks the following question, which we would much rather see Dr. Harris answer himself than attempt it for him.

"If what Dr. Harris says of amalgam is true, how does it happen that it frequently remains in teeth from ten to fifteen years?—and if it hastens their decay, how long would the same teeth have lasted without it? I must confess that I have seen cases, though strange it may seem, where it had an opposite effect, to all appearance exerting, so to say, a kind of anticeptic, preservative influence. I know this is considered bad doctrine by many, and if one were to promulgate it, he would sadly expose his nerves, and might require "Risodontrypy."—How is it, is that good Greek? Is it not *Rhy*-sodontrypy, being from the Greek? I am no Greek scholar, therefore ask for information."

In answer to the last question, we have to say, that the word selected to classically express the new operation is derived from three Greek words; *Rhyzo*, a root, *odontos*, the genitue for a tooth, and *trypao*, to rub, bore or drill. We should say therefore, that it would be more in analogy with the Greek, to spell the word *Rhyzodontrypy*; though, as it is well known that all the operations of the dentist are confined to the teeth, *odontos* might be omitted, and the word made *Rhyzotrypesis*, or fang-drilling.

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**ERRATA.**—Our subscribers are requested to make the following corrections, in the article by S. P. Miller, published in our November No. On page 43, 15th line, for "use" insert *roots*, on same page after case 1st. for "1830," insert 1850, and 2d. line from bottom for "alveolar" insert *alveolus*, on 44th. page, 8th. line from bottom, for "cicatraces" insert *cicatrices*, and on 46th. page, 2d. line from the close of the article for "profession" insert *professions*.

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**To SUBSCRIBERS.**—Several of our subscribers are now in arrears for two volumes of the Recorder; and to such we wish to give notice that the work will be discontinued, from the present number, until they remit the amount of indebtedness. To all who are still in arrears for vol. 7, we would say that our terms are "payable in advance" the amount to each is trifling, while the gross is needed to sustain the work. No one need be afraid that the Recorder will not survive another year.

# NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of  
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

VOL. VII.

FEBRUARY, 1853.

NO. V.

## HULLIHEN'S OPERATION FOR TREATING EXPOSED DENTAL NERVES.

BY C. O. CONE, M. D., BALTIMORE.

*To the Editor of the New York Dental Recorder :*

In my article, republished in your Journal for December, and dated Nov. 26th, I gave the assurance that Dr. S. P. Miller should be more fully noticed, than what a proper regard for the wishes of the editor of the Boston Medical and Surgical Journal, (where the paper was first published,) would permit at that time and place. In meeting Dr. Miller's challenge of Nov. 5th and 10th, I shall not permit the introduction of new issues in the debate ; and at the same time expressing a determination to award to Dr. Miller *all that is truly his*, not omitting that plainness of language which his bantering attitude seemed so anxiously to court.

To those who are familiar with the matter, it will be remembered, that on the 4th of last August, I read a report on Hullihen's operation, for treating exposed dental nerves, before the American Society of Dental Surgeons, then convened at Newport. A copy of this report was furnished the editors of the Dental News Letter, and the New York Dental Recorder, on the *first* of September, and was nominally published in the Dental News Letter on the *first* of October ; but in fact, published and circulated *during the month of September*. Before the publication of my report in the New York Dental Recorder, there was published in the August number of that paper, (the month in which the report was read,) a lucid description of Hullihen's operation, in a synopsis of my report : made by one of its editors who was present at its reading. On the 20th of October, there appeared in the Boston Medical and Surgical Journal, an article over the signature of S. P. Miller, dated Worcester, Mass. Oct. 4th, describing in a general manner, an operation similar in purpose, &c., to the operation described in my report ; without referring in any way to the fact that Dr. Hullihen had

been for seven years performing an operation, which Dr. Miller in this paper endeavored to claim exclusively as his own. On the 28th of October, I addressed a note to the editor of the Boston Medical and Surgical Journal, saying, that my attention had been called to an article in his Journal, by Dr. Miller, which was calculated to convey an incorrect impression to his readers, both as regards the history and character of an important operation in Dental Surgery, and requesting the editor to republish my report, which was read before the American Society of Dental Surgeons, more than two months before—thus offering Dr. Miller an opportunity to correct an inadvertant error, and rescue his reputation from dishonorable intentions. Instead of doing this, he replied in two articles published in the Boston Medical and Surgical Journal, Nov. 17th, challenging a discussion, in no very gentlemanly terms, on points which I shall now endeavor to meet.

Dr. Miller says, in the last article above referred to—

"With no desire to engage in an angry controversy as to *priority of discovery*, (?) I am ready to compare well-attested dates, &c., as to the time *when* and the persons to *whom* I made known the secret, (!!!) and to show by *unimpeachable* evidence, that this subject was brought before the American Society of Dental Surgeons at their annual meeting in Philadelphia in August, (the 6th,) 1851. *One year in advance* of Dr. Hullihen by Dr. Bridges, of Brooklyn, N. Y., in his remarks on the treatment of exposed dental nerves, found on the 194th page, (badly reported,) of the Dental News Letter, "Vol. V, No. I."

What an amount of shameless assurance is found in the first part of the above quoted sentence. It amounts to simply this: that Dr. Hullihen must prove to this self-appropriator, that he (Dr. Hullihen) spoke the truth, when he declares, in his letter to me, that he performed the operation seven years before he ever heard of Dr. Miller, and that I must show the truth of the report, when it declares that Dr. Hullihen informed me of his experiments, one year before Dr. Miller claimed to have contemplated the operation. But this point has been met, by the republication, in your Dec. No. of my article dated Nov. 26th, in which Dr. Hullihen shows from the evidence of a physician and surgeon, on whose teeth he performed the operation; and by dentists to whom he taught this practice, (and one of whom, Dr. Daniel Boisol, was successfully performing the operation a year before Dr. Miller dates his first operation,) all that has been claimed by Dr. Hullihen as regards priority of discovery.

Now, let us examine how far Dr. Miller is able to sustain his position as regards his declaration, that this operation was brought before the American Society of Dental Surgeons, one year in advance of Dr.

Hullihen. At the time Dr. Bridges made the remarks which Dr. Miller *endorses and claims*, as presenting the subject of Hullihen's operation to the American Society of Dental Surgeons, and which remarks Dr. Miller represents as incorrectly reported, the society was engaged in the discussion of the disorganization and removal of the nervous-pulp from the canals of teeth, and filling them with gold; and in this connection Dr. Bridges made the following remarks, to which Dr. Miller refers as descriptive of his operation, namely:

"Dr. Bridges. \* \* A remark has been made which reminds me of a course of practice presented by a friend of mine. He has endeavored to preserve the nerve alive by *cutting it off above the wounded part, taking out the wounded part*, and after medical treatment, filling the tooth. He told me that in the last two or three years he has taken out fillings to see the state of the teeth, and that in several cases a deposit of white foam (bone?) had been found in the nerve cavity, and a beautiful health state of the nerve had taken place. If this is a fact, it is worthy of notice; and I believe that if one half of the attention was paid to keeping the nerve alive that is paid to killing it, there would be found some remedy that would save almost every nerve."

The italics and brackets in the above sentence are ours; with this exception the sentence stands as published. Now does the above quotation look like describing Hullihen's operation one year in advance of my report to the Society? Does it look as if Dr. Bridges knew that "*some remedy had been found*," (without taking out a part of the nerve,) which "*would save almost every nerve?*" Surely not! Neither could any member of the Association who heard Dr. Bridges' remarks, infer that he so intended them. He described a method for treating exposed dental nerves, in which the operation consisted in the removal of the nervous-pulp from the crown of the tooth; and, I feel warranted in saying, that the members of the Society, who heard Dr. Bridges' remarks at Philadelphia, and my report, did not recognise a similarity in the two descriptions, or the purposes of the two operations. And, when Dr. Bridges remarked on the floor of the American Society of Dental Surgeons, convened at Newport, that he spoke of a similar operation, (referring to my report,) the year before at Philadelphia; he was interrupted by a member of the Society, who reminded him, that the operation he described at Philadelphia, consisted in the removal of the nervous-pulp from the crown of the tooth;—Dr. Bridges replied, saying, the removal of the nervous-pulp from the crown of the tooth, was the operation which he (Dr. Bridges) had performed; *but he had just learnt from Dr. Miller*, that since the last meeting, Dr. Miller had sometimes amputated or punctured the nerve. It should be borne in mind, that this remark of Dr. Bridges, was made after he had heard the descrip-

tive part of my report read and then had left the room for a time, where the Society was convened. What clearer contradiction could be given to Dr. Miller's claim that Dr. Bridges brought Hullihen's operation before the American Society of Dental Surgeons in 1851? Surely Dr. Miller will not question Dr. Bridges' intelligence, or ability to understand himself. Will Dr. Miller then place his defence on the ground that Dr. Bridges was "*badly reported*"? If so, fortunate for the cause of truth, Dr. Bridges also illuminated this point of the subject, and that too, before the American Society of Dental Surgeons convened at Newport. He referred to the report of his remarks made at Philadelphia, and corrected the report by saying, that he was printed "white foam" when it should read "*white bone*." Dr. Bridges took no exception, and complained of no inaccuracy in the report of his remarks, except *this one typographical error*. Had there been other inaccuracies, would Dr. Bridges have singled out this one word for correction, leaving the whole of his remarks uncorrected if such correction was demanded by any inaccuracy? The whole analysis of this sentence from Dr. Miller's article can lead to but one conclusion; that he cannot sustain his position without forcibly distorting the facts.

Dr. Miller again remarks in his article, that—

"Although I heard that a paper was read on the treatment of exposed dental nerves, before the American Society of Dentists, at their annual meeting held at Newport in August last, I had not the pleasure of hearing it, being detained by the severe illness of my wife, which prevented my arrival at Newport till after the meeting had adjourned."

This sentence means something, or nothing. If something, the simple fact that Dr. Miller was not at Newport until after the adjournment of the American Society of Dental Surgeons. In contradiction of this statement, Dr. Bridges announced on the floor of the American Society of Dental Surgeons, while in session, that Dr. S. P. Miller was then in Newport, and at the house in which the society was then convened. Dr. Miller can not claim Dr. Bridges evidence as material at Philadelphia, and immaterial at Newport.

Can Dr. Miller then intend the inference to be drawn, that he purposed to have brought the subject of Hullihen's operation before the society, but arrived after its "*adjournments*"? Or that he had been superceded by my report? If so, have we any evidence that Dr. Miller visited Newport to enlighten the members of the society on *any subject connected with dental surgery*? I think no such evidence exists. Had that been Dr. Miller's object, would he have remained

absent from the society, when in session some hours after his arrival had been announced? Had he proposed to present this subject to the society, would he have omitted to have been present during the discussion that followed the reading of the report? Or, would he not have made known his intentions to the society in some way? Most certainly Dr. Miller would have made his presence and intention both manifest, if he had intended *at any time* to have brought this, or any other subject before the members of the society. But Dr. Miller came to Newport for other purposes than enlightening the members of the American Society of Dental Surgeons on any point of practice. He came as "showman" for the sale of rights to make "*continuous gums.*" In company with Dr. Hullihen and other gentlemen, I was informed that Dr. Miller was at Newport with "specimens of this kind of work," and was induced to visit his room, where Dr. Miller had his specimens arranged on a table for examination, and I doubt not the gentlemen who accompanied me, remember well, that after leaving his room, the shame I expressed for the disgrace and desecration of the profession, by men, claiming to be members, who, with packs on their backs, like the dromedary, rove from city to city, exhibiting the three leged calf, or the two headed goose, and selling the latest dental patent. And these gentlemen will also recollect, that the subject of my report was named by Dr. Miller on the occasion of that visit to his room; and that he did not for once question Dr. Hullihen's claims, or express in the remotest manner that the report had superceded his intentions of bringing a similar matter before the society. It is also remembered, that on the same occasion, Dr. Miller did remark that he was prevented from arriving at Newport at as early a period as he intended; but that the remark was not in connection with my report of Hullihen's operation, or of Dr. Miller's expressing any intention of presenting a like operation to the consideration of the society; but, the remark was made in connection with his "specimens of this kind of work," (*continuous gums,*) and that it had brought in a "press of business for the last week, at the rate of \$100,00 a-day." If Dr. Miller had intended to have presented this operation to the society, or had he been superceded by my report, would he have let the opportunity of this interview just related, to have escaped without in some way expressing his intentions of having done so? Or would he not have made his disappointment manifest?

Dr. Miller says again in his article:—

"It will be seen on examination of Dr. Hullihen's paper, that my experiments

vary from his, in that he gives no account of amputating the nerve, removing the pulp, nor of having employed the operation in cases where the nerves are *not exposed*, as detailed in my paper."

I would here arrest the attention of the reader to point to the fact, that Dr. Miller has stated the truth, in the above quoted sentence, when he remarks, that Dr. Hullihen "gives no account of amputating the nerve, or removing the pulp," which Dr. Miller claims for himself,—claims, which are the only ones connected with this discussion, to which Dr. Miller has a valid right. But I cannot permit Dr. Miller to appropriate to himself the employment "of the operation in cases where the nerves are *not exposed*," or without amputation; to the exclusion of the claims of Dr. Hullihen. In answer to my fourth question, as seen in the report, and which Dr. Miller says in his article he has examined, Dr. Hullihen replies: "Fourth. The indications for performing the operation are, in all cases where the nerve has become fairly exposed, particularly so in teeth of young subjects, *and where the presence of a plug will likely provoke inflammation in the nerve by its close proximity to it.*" Does this look as if Dr. Hullihen makes no mention of his "*employing the operation in cases where the nerves are not exposed*," as asserted and claimed by Dr. Miller? What is this but the boldest plagiarism, and the rankest piracy? And this seizure of that which is another's, and claimed as his by Dr. Miller, is done in the same article, where he acknowledges that he has examined my report; thus establishing the appropriation as a deliberate and meditated act.

It may possibly be asked if Dr. Miller has not some grounds on which to rest his claims? Did he not do something in treating exposed dental nerves? Probably he did—and what that something was we will determine by Dr. Miller's evidence. Dr. Miller claims to have acquainted Dr. Bridges, of Brooklyn, N. Y., with his operation in 1850. Dr. Bridges described an operation before the American Society of Dental Surgeons, convened at Philadelphia, August, 1851, for the treatment of exposed dental nerves, which consisted in the removal of the nervous pulp from the crown of the tooth, as shown from the quoted remarks of Dr. Bridges on that occasion. This description of the operation made by Dr. Bridges, Dr. Miller has claimed as his operation; and consequently he cannot go back of that date of the description to establish improvements in its practice; as Dr. Bridges remarked on the floor of the American Society of Dental Surgeons, convened at Newport, August 1852, that the operation he described at Philadelphia, was the operation that he was *then* familiar with. Dr. Miller will not be per-

mitted to make Dr. 'Bridges' description important in establishing his claims, and not of consequence when wishing to establish something else.

What is piracy? The robbery of another, by taking his intellectual labors and his writings without the privacy or consent of that other. [See Richardson, art: Pirate; and Webster, art: Piracy.]

Dr. Miller has seized and appropriated a discovery made seven years before by another, and that after it had been communicated to the profession for general use and benefit. He has seized certain published applications of this discovery, and appropriated it exclusively to himself. Now what shall such conduct be called? Is it professional piracy?

What may be understood to be plagiarism? Literary theft:—the adoption of the thoughts and works of another, and putting them off to the public as his own. [See Johnson, art: Plagiary; Webster, art: Plagiarism.] After a report had been made on Hullihen's operation, and it had become a part of the transactions of a Scientific Association, Dr. Miller wantonly appropriated as his own, in articles published over his signature, in the Boston Medical and Surgical Journal, the invention, operation, ideas and works of another, and thereby attempting to build up a professional character by robbing another of his well earned reputation. [See Richardson art: Plagiarism.] Again:—the same ideas are expressed in the same relation in many sentences of Dr. Miller's article, as expressed in my report, and which fact, can but force itself to the mind of the most ordinary observer. This conviction gains strength, when Dr. Miller studies his language to enable him to express the same ideas and principles in the same connection, *but in other words than that expressed in my report*. This feature is plainly seen in that part of Dr. Miller's first article, which refers to the description of the operation, the instruments for performing it, and the after treatment with *nitr. as argenti*. Does literary and professional morality call this plagiarism? The absence of a proper acknowledgment of Dr. Hullihen's claims, &c., by Dr. Miller in his published papers can not be covered by, or apologised for, as a simple neglect of courtesy; but, regarded as a deliberate offence of another character. Will Dr. Miller then attempt to explain the similarity in the two papers, as a coincidence? This he cannot do with any show of truth, as he knew that my paper had been read before the American Society of Dental Surgeons, and subsequently, but before the date of his article, he heard the contents of my report.

spoken of, and discussed. And more than this, he had a lucid description of the operation, instruments, &c., in an epitome of the report; made by one of the editors of the New York Dental Recorder, and published in the August number of that paper. The article referred to says—

"The operation consists in drilling into the nerve cavity about a line above the margin of the alveoli; through the gum and alveoli, *without separating the nerve*, and wounding it as lightly as possible. The drill should be *spear shaped*, with one cutting edge longer than the other, shaft smaller than the drill head, and driven with a bow, and with slack string, and the size of the drill to be the same as the size of the nerve at the point where the fang is perforated.

"The operation is to be performed where the nerve is exposed, in excavating the crown, so as to produce pain and pressure, or, in that class of operation where the nerve is usually destroyed by arsenic. The results of this operation are said to be the preservation of the vitality of the nerve, instead of its destruction, as in cases where arsenic is used. While at the same time, the operator is enabled to fill the cavity in the crown, without pain or inconvenience.

"Much care is requisite for the success of this operation, and the drill cuttings must be carefully removed from the fang, where the hole is drilled."

The operation, &c., is sufficiently plainly expressed in the above, to contradict any assertion that Dr. Miller may make, that he could not have been familiar with the subject matter of the report, at the time he wrote his article, published Oct. 20th.

Dr. Miller in his paper last named, makes reference to other methods of practice in the treatment of exposed dental nerves, in a tone of comparison, which, in my opinion, is alike calculated to convey an incorrect impression relative to the character of this operation, and lead to abuse of its practice.

While I shall resist any attack of Dr. Miller on the claims of Dr. Hullihen relative to this operation, deemed of sufficient importance to demand notice; neither my philanthropy or charity to Dr. Miller, will permit me to be drawn into a controversy, the purposes of which may be to contribute to the *traficing spirit of trade*, or be made subservient to personal notoriety for the attainment of pecuniary ends.



## THE SENSE OF TASTE AND EFFECT OF PLATES WORN IN THE MOUTH.

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BY W. H. DWINELLE, M. D.

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Nature in her wise economy, has supplied us with various organs and appliances, each of which has a legitimate office for a specific pur-

pose; and although the spirit from its inner temple may so marshal a part, or all those individual agencies, as to produce results collateral to themselves; yet each has an individuality, and each has an office and a power assigned to it, which cannot be performed or usurped by another.

With our eyes we are enabled to see, with our ears to hear; and with our tongues to taste; and over all of these, and every other organ, and part of the body, is given the ability to feel,—the *mind*, however, alone sees, hears, feels, &c., &c., and these are its instrumentalities, these are the delicate media, and these the ingenious mechanisms, through which she receives her impressions.

There is a concert and harmony of action, in the operation of all these appliances, and though one organ may indirectly assist another—or directly, as in the case of those of taste and smell—yet it never takes upon itself duties and offices, extraneous to its own character, or the intention of nature.

The eye never takes upon itself the duties of the ear; the ear never meddles wth optics; nor does the organ of smell ever push its nose into the affairs of either. We never attempt to perform the office of smelling with our tongue, nor can we taste with our *ruga*! And here, Mr. Editor, we find ourselves introduced at once to the very “head and front” of the matter, in regard to which we sat down to write. We will at once press forward our question. *Do we ever taste with our rugæ?* We answer, most emphatically, no, under no possible combination of circumstances, or course of discipline, could one individual *ruga* be made to answer as the poorest substitute for the tongue; for the simple reason, that *ruga* were never designed for the purpose, and are not supplied with nerves of taste as is the tongue. In common with the latter organ, it has the sense of feeling; it has other offices and uses, but tasting is not one of them.

We have intimated that the *ruga* have offices and uses peculiar to themselves. By their ability to feel, they aid the tongue in locating food in masticating; they are material aids in articulating, especially the dental sounds; but their chief and most practical office and use is, to answer the purpose of a macerating board for spreading and displaying the food, so that the greatest possible surface may be exposed to the nerves of the tougue. Since the tongue can best perform its office when brought in direct contact with some opposing or neighboring part of the mouth, the *ruga*, by their complete antagonism with the tongue,

furnish it with the most valuable assistance. Some of the nerves of taste are distributed around the fauces, uvula and posterior portions of the velum, but none of them ever have, or ever will, so far encroach upon the palatine ridges, as to supply the rugæ with offices not their own. And yet, it is a popular error, that "*we taste with the roof of the mouth!*"

The number, character, and origin of the nerves, employed and distributed about the organ of taste, still remains a matter of controversy; yet all, I believe, agree that the *glossopharyngeal*, a branch of the eighth pair of nerves, and terminating upon the mucous surfaces of the fauces, and back part of the tongue; and the *lingual branch* of the fifth pair which mostly supply the upper part of the tongue, and is copiously distributed to the papillæ near the tip—constitute the chief nerves by which impressions of taste are realized in the great sensorium.

"Raspail says, that "for the tongue to perceive savors, it must be placed in communication with some other part, or even with a foreign substance, by means of the vapid body. Thus, if we dip the end of the tongue in a vapid liquid, we experience merely a sensation of touch, but none of taste. But if we now apply the end of the tongue to a silver spoon, the perception of taste, he says, is immediately developed. So, if we moisten with a little syrup, the lips, gums, teeth, or palate, no perception of taste will be excited in these parts; but if we now apply the tip or edges of the tongue to the moistened part, we shall immediately perceive the taste of the syrup. Hence, Raspail considers the tongue alone as the proper seat of the taste; but for the production of the sensation, two other factors are necessary, viz., a vapid substance, and a third body, with which the tongue is brought into communication by means of the former. The process he regards as a galvanic one; the tongue representing the positive pole, the palate, cheeks, lips, teeth, &c., the negative, and the vapid body, which must be in a fluid state, as completing the circle. Raspail illustrates this view by the well known experiment of placing the end of the tongue between two pieces of coin, one of silver, the other of copper or gold. When in this position, if the edges of the two coins are brought together, an acid taste is perceived at the instant of contact, but disappears the moment this is interrupted, the perception of taste in all other cases he maintains, is the result of a similar mechanism, and the tongue, by itself, although the organ of taste, is incapable of tasting anything."

We do not entirely endorse Raspail's theory, for the tongue is capa-

ble, though imperfectly, without being brought in contact with opposing substances. Yet admitting his hypothesis to be correct it only supports our theory, for the plate of gold is in a negative electric state of itself, besides, from its immediate proximity to the rugæ, it is the best possible conductor to it.

It may be contended by those who would advocate the gustability of the rugæ, that as the tongue cannot perfectly taste until the vapid body has by its aid been brought in contact with it, we are not justified in concluding that one organ more than the other tastes the intervening substance. A single experiment will at once decide the superiority of the tongue. Moisten a piece of thick writing paper; on one side of it sprinkle a few grains of sugar; and on the other a few grains of tartaric acid, in such a manner that it will not fall off. Carefully apply this, acid side up, to the rugæ; now bring the tongue in contact with the paper, and the sweet taste of the sugar will be recognized, while the acid is nowhere perceptible. Now remove the paper, rinse the mouth, and apply it as before, sugar side up—the tongue detects the acid, and the rugæ has tasted neither.

"That was an excellent set of teeth you constructed for my wife, Doctor—never saw anything more beautiful; the shape, character, and tinting of the teeth so exactly correspond to her original ones, I could almost have sworn you had the natural set I first became acquainted with many years ago before you, to copy from; and this is not all, you have restored the contour of her face to its original character and beauty. In place of that narrowness and sunken expression about the upper lip, you have, by an additional application of your art, rounded it out to the same breadth and fullness and given the same pleasing and natural expression which she wore long before you saw her, the same expression which constitutes one of the greatest charms of her portrait by Sully, painted when she was young, but which unfortunately, some time ago, I had felt obliged to send away into the garret, the contrast between the two was so great; now, they will do to live together again, it shall hang in its old place in the parlor."

"You have elevated your art to something far more than mere dentistry, something more than to supply the loss of the teeth; you restore the lost expression, the lost peculiar smile, the lost familiar and family likeness; you give us back our youth, and restore us to our friends as they were in days of yore—indeed, you seem to have pressed many arts into the service of your own; like the physiologist, you seem to have

had an eye to comparative anatomy, and like an artist, to have studied form, color, and harmony. But, Doctor, there is one great drawback to your success in the case of Mrs. B.; she masticates readily with her teeth, their adaptation is firm yet easy, but they have ruined her taste, Doctor, while her mouth is covered with the plate, she tastes nothing at all, every delicacy and every variety of food is alike tasteless to her; cannot you devise a remedy, Doctor?"

Many have listened to just such a combination of compliments and complaints as the above, and, unfortunately, many to remedy the supposed evil, have gone back to narrow plates and springs, so that the rugæ might be left free to *taste!*

Learned dissertations have been written, and ingenious contrivances invented, for the purpose of leaving the rugæ free to exercise a function they do not possess.

A few simple experiments are always sufficient to convince the class of patients under consideration, not only that they do taste as well as before, while the plate is in their mouth, but also of the manner into which they have fallen into their error.

Let them open the mouth and place their tongue in such a position that it will not come in contact with the rugæ, now let them place successively different articles of food, condiments, &c., &c., upon the rugæ; sand and sugar, acid and honey, alike make the same impression, and that impression is only through the nerves of feeling.

When a broad plate is first placed in a patient's mouth, the rugæ being covered thereby, no longer feels the presence of the tongue; the tongue has been accustomed to feel the rugæ, and the rugæ to echo back the feeling; now this antagonism and reciprocity is broken up by the barrier between, creating a difference and confusion of feeling, which is easily confounded into a loss of taste. Unfortunately, often-times, poisonous oxyds from impure plates, vitiating the secretions of the mouth, favor the delusion. We need no better evidence of its being a delusion, than the act that all intelligent patients who have gone through with the above experiments, have invariably found their *taste restored to them!*

The formation of the rugæ is reproduced upon the plates when struck up in a proper manner, rendering them in all respects, save their inability to feel, equal to the natural rugæ underneath.

For the highest degree of permanency, comfort, and practicability in full upper sets, we need strong, thick, broad plates, covering all, or

nearly all of the hard palate ; if such plates are of a proper degree of purity, and are aided by care and cleanliness in their use, no reasonable objection can be urged against them.—*Am. Jour. of Den. Sur.*

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### ENAMELS FOR METALS.

Enamels are composed of coloring matters, which for the most part consist of metallic oxides, and, secondly, of fluxes, or vehicles for the color, consisting of vitrifiable substances, such as silicates, borates, or boro-cilicates, in different proportions. The color of an enamel results either from the color of one of its constituents, or is a result of the chemical combination of the constituents ; in the one case, the coloring of the matter is simply mixed with the flux, or, if the flux combine with it chemically, it does not effect its coloring property ; in the other case, the flux has a chemical action on the coloring matter.

Gold, silver, and copper, are the metals which are usually enamelled. The enamels used for the purpose must have their point of fusion below that to which they are applied ; it must be higher for copper and silver than for gold. They must be very fusible when used alone ; but when they form a ground for other enamels, they must be capable of resisting a high temperature without fusing.

Enamels are opaque or transparent ; those which are used as a ground are opaque ; those which are used in painting may be transparent or opaque, but the latter are usually preferred, especially for silver and copper.

Enamelling on metals is more difficult than on glass and porcelain. The presence of an oxidizable metal usually produces a reaction between the two bodies ; the enamel dissolves the oxide which forms on the surface of the metal at a high temperature, and becomes colored thereby ; or the enamel may itself oxidize the metal, in consequence of the oxide of lead contained in it, in which case the lead is reduced, and the color is destroyed. Hence gold admits of being enamelled better than copper and silver ; but if gold contain copper, some difficulties may be experienced. On copper and silver the enamel generally undergoes some change, at least in the layer which is in contact with the metal. If the enamel is transparent, the defects are apparent ; but if opaque, and the surface smooth, the defects are concealed. Copper and silver are sometimes first covered with an opaque enamel and afterwards with one that is transparent.

The objects to be enamelled are usually prepared for the purpose by the jeweller. They may be entirely or only partially covered with enamel, according to the design. In the one case there must be a projecting edge to retain the enamel, and in the other certain hollows engraved according to the design.

All the enamels which are applied to metals have a vitreous, transparent, colorless base. The following are recipes for transparent enamels:

Silica, 3 parts; minium,\* 5 parts; nitre, 1 part; borax, 1 part.

Opacity is given to enamels by the addition of a certain proportion of —1, oxide of tin, 2, phosphate of lime, or 3, oxide of antimony. The oxide of tin is first combined with the oxide of lead before the enamel is made. For this purpose metallic lead and tin fused together, and raised nearly to a red heat; the oxide which forms on the surface is removed as fast as it is formed; heat is again applied, to render the oxidation more complete. It is next stirred up in water to precipitate the minute portions of metal which have escaped oxidation, and in this way the oxide can be separated.

The proportions of tin and lead which are to be thus fused together vary according to the composition of the enamel into which these oxides enter. A quantity of oxide of tin equal to about one-tenth of the weight of the enamel will render it of an opaque white. The proportion of lead is variable according to the kind of enamel required. For this purpose the following alloys will be found useful:—

Lead, 5 parts; tin, 1.

In the following recipes for opaque enamels, the oxide of one or other of these alloys is used instead of the oxide of lead in the transparent enamels:—

Silica, 3 parts; nitre, 1 part; lead, 5 parts; tin, 1 part; borax, 1 part.

The above enamels are those adapted to gold. The more fusible enamels required for copper and silver may be formed by the addition of one-eighth of their weight of calcined borax. By the further addition of this substance the fusibility of enamels may be increased at pleasure.

Colored enamels may be formed either opaque or transparent, by melting up with any one of the above enamels a certain portion of some metallic oxide, as indicated in the following recipes:—

\* Red lead.

**BLUE ENAMEL.**—Take opaque or transparent enamel, 10 parts. Oxide of cobalt, 1 to 2.

**GREEN ENAMEL.**—Opaque or transparent enamel, 6 parts. Oxide of chromium, 1 to 2.

**ANOTHER GREEN.**—Opaque or transparent enamel, 30 parts—Binoxide of copper, 1 to 2.

**VIOLET ENAMEL.**—Opaque or transparent enamel, 30 parts. Peroxide of manganese, 1 to 2.

**YELLOW ENAMEL.**—Opaque or transparent enamel, 6 parts. Chloride of silver 1 to 2.

**PURPLE ENAMEL.**—Opaque or transparent enamel, 12 parts. Purple of Cassius, 1 to 2.

**BLACK ENAMEL.**—Transparent enamel, 15 parts. Oxide of copper, oxide of cobalt, and oxide of manganese, 1 to 2 parts of each.—*Scientific American.*



## DEATH FROM HEMORRHAGE CONSEQUENT UPON LANCING THE GUMS.

**TO THE EDITOR OF THE LANCET:**—Sir—Your correspondent, Dr. Whitworth, who thinks his case of fatal hemorrhage from lancing the gums to be unique,\* will find a similar one communicated by Mr. Taynton to the late Medical Gazette, so far back as January, 1836, besides at least two others in the second volume of the Lancet for 1846.

Mr. Taynton,—after stating that his little patient, six months old, had the gums lanced on Sunday, and, in spite of various styptics, including, as in Dr. Whitworth's case, the actual cautery, died from the loss of blood on the Tuesday,—proceeds as follows:

“Now, suppose such a case had occurred in a family of high rank, and the child had died, what a sensation would it not have caused! And how highly injurious might it not have proved to the surgeon's reputation! A similar case might happen again. Surely, then, it is important to know what mode of treatment would be likely to arrest the hemorrhage; and I hope that some of your able correspondents will favor us with their opinion on the subject.”

As I am not aware that this appeal to the opinion of medical men was ever responded to, though the conjecture that cases of the same distress-

\* Vide June Lancet, p. 488.

ing kind might happen again has been repeatedly realized, I beg to offer you my own ideas on the subject :—

The first point to consider is, how the occurrence may be prevented. If, as in Mr. Taynton's case, the hemorrhagic diathesis exists, no one knowing this would think of scarification. It may be advisable, therefore, in every instance where that operation is indicated, and the child is under a twelvemonth, to enquire whether that peculiar constitution exists in the family. Surely, it is better to put the question a thousand times in vain, than lose the chance of avoiding that most painful of all a medical man's trials—the sight of a helpless patient dying through the very means employed for his relief.

Another most important rule is to make no long incision, but if several teeth are advancing on the same line of gum, to let the scarifications be short and detached. In one of the cases I have met with in the Lancet, the gum-fleam had slipped from over the crown of the tooth backwards, and had separated the gum to some extent from the inner surface of the jaw bone. This, of course, should be carefully avoided ; and it will more easily be so if no long incision is attempted.

Though never so unfortunate as to meet with troublesome bleeding from any gums I myself have lanced, the symptom has occasionally come under my treatment, and I have as yet nearly always succeeded in getting it under by pressure with the finger upon a suitable compress, saturated with a strong solution of nitrate of silver. In one case only, that of Captain V——, do I remember employing the caustic in substance. That gallant officer, on the 4th of November, 1846, had been to a dentist, who had made a horizontal incision over the roots of the left upper bicuspids, which had bled the whole two miles of his walk home, and by the time I arrived had produced a considerable pallor and faintness, and filled the mouth with coagulum. After applying the compress for a quarter of an hour, with partial effect, I saw the jet of a small artery, and after touching it with a point of lunar caustic, had no further trouble. With infants, however, on account of the delicacy of their mucous membrane, and especially with those whom I suspected of the hemorrhagic diathesis, I would carefully avoid the solid nitrate of silver, for fear of secondary bleeding on the separation of the slough.

Independently of local measures, it would seem prudent to give from time to time a few drops of the tincture of ergot or other internal styptic, (perhaps the tincture of matico,) so long as hemorrhage continued ; and, last in mentioning, though first to be remembered, one ought al-

ways, on learning that a child's gums were bleeding unusually, after scarification, to attend immediately which appears not to have been done in all the cases reported.—*London Lancet.*

I have the honor to be, Sir,

Your most obedient servant,

F. A. B. BONNEY.

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## SINGLE TEETH CEMENTED INTO BLOCKS;—WHO IS ENTITLED TO THE CREDIT OF PRIORITY?

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BY GEO. E. HAYES, BUFFALO.

MESSRS. EDITORS:—The above question is one which naturally presents itself to every Dentist, when solicited to purchase the patent right to make that kind of work ; and it is a question which every right minded man must be supposed to decide, for himself, before he ventures to disregard such right, and make it in violation of the patent. Now, as the Cincinnati competitors have had ample time, and space , to bring forward all their claims, and as each has for himself, doubtless, made out as strong a case as the facts will possibly warrant, I desire, through your journal, as a simple act of justice, to claim that honor, for a Dentist of Western New York, at least, so far as it can belong to any one in this country.

About fifteen years since, Doct. Thomas Harrison, then of Lockport, showed me a whole upper set of teeth, worn by himself, and baked in one piece, to fit the mouth, with continuous artificial gums. Shortly after this, I sold to him one or more sets of Stockton's teeth, which he informed me were to be united by means of a fusible body, similar to that worn in his own mouth.

At a subsequent time, he informed me that he succeeded in doing so ; and in return for some slight favor, he gave me his recipe for the composition.

Feeling an interest in learning something more definite as to his success, I addressed, not long since, to Doct. L. W. Bristol, his former partner, some enquiries in reference thereto, and have just received from him, the following letter, with specimens of Dr. Harrison's work, and trust he will excuse me for giving it, entire, to your readers.

*Lockport, Dec. 14th, 1852.*

DR. HAYES.—Dear Sir :—In answer to your enquiries, I send you some specimens of Doct. Harrison's work. The piece marked No. 1, was made by him for Geo. W. Darling, who kept a public house four miles east of Johnson's Creek, fifteen years ago this winter. Darling wore them about eight years, until the teeth failed to which they were fastened. I then made for him an atmospheric plate. The block No. 2 was made by me, eight years ago for Henry S. Harvey, and worn five years, when the teeth failed to which they were attached. I broke the block to show how the cement adheres to the teeth. The other specimens are by Harrison—old pieces that I happened to have in the office—they must be at least ten years old. Harrison was here last winter, and still continued this style of work. I then made, and gave to him, about one hundred teeth without platinas, such as the specimen enclosed, which he intended to use in this way. He then resided at St. Catharines, C. W. I do not know what progress he has since made.

Yours Respectfully,

Signed,

L. W. BRISTOL.

The piece referred to in the above letter, marked No. 1, is a block of nine pivot teeth, of Stockton's old manufacture, all firmly cemented together, and in regular position. No. 2, is the same description of work made of plate teeth, and backed only with the cement.

These pieces are evidently strong somewhat clumsy, but without any metallic plate whatever, and show, by the marks, they have done good service.

The other specimens will bear the same general description. They are all quite too opaque to be life-like, but in this respect, so far as I can recollect, they compare favorably with the cement work exhibited at the American Institute in 1851.

These specimens are deposited at my office, for inspection, by any one who feels an interest in the question of priority, or the validity of patents, &c.

So much in justice to Doct. Harrison. But my work is but half done, and I propose, in this connection, to go back, and give a few short extracts, as brief as possible—from Fitch's Dental Surgery, published first in 1829, from which work I obtained my first lesson in the manufacture of porcelain teeth, and learned the actual practicability of uniting mineral teeth in whole or parts of sets, to a platina plate, by means of a fusible body.

I quote from page 471, second edition, "M. Delabarre, like other Dentists, having felt the necessity of making pieces to embellish the gums, in order to remedy the depression of the edge of the alveolus, and thus make the artificial teeth of a natural length, has thought of making a paste, which may serve for the base of incorruptible teeth, already baked in the furnace of the porcelain manufacturer. This paste is made very fusible by the addition of a solvent." Again, on the same page, Delabarre is quoted thus, "I make use of the callodontes (porcelain teeth) very thin, and without cramps, (platina pins) but they are first baked by a porcelain fire."

Again, same page, "when I wish to make a set of teeth with gums, I take of the above paste. I place it on the model" &c., &c.—Again, "this joined work reunites with so much solidity in baking, that the percussion which would break the whole, would not separate one part from the others. It is well to insure oneself of the solidity of the smallest sized pieces, in fixing upon them a base or bottom of *platina*, which is always understood, will prevent them from falling into pieces if they crack in the furnace, and which will facilitate the reunion, by means of enamel and a new application of the fire."—Again, on page 472, "when I mount a set of teeth on a plate, I apply the paste here spoken of, behind the teeth and afterwards in their interstices."—Again, "the paste which is put in the interstices agglutinates, and makes it quite solid, giving much beauty to the work."—Again "I properly bake the bar, (base) if any crevices are formed in it I stop them up with earth, (paste) a little more delicate (fusible) than the first; then I place a covering over it while the fusibility is going on, and raise the heat to the degree that is calculated for its semi-vitrification."—Again, "I incorporate a small quantity of the muriate of gold, I put it in the furnace, and I stop the heat the moment I obtain the shade I wish."

I italicise the above passage to show how very minutely the gist of this "new invention" is here described, by Delabarre himself. Not only the teeth are united into block-work, like that of Doct. Harrison, but he recommends, always, even in the smallest pieces, and says it is "always understood" that a platina plate is used. He also envelopes the whole in a covering while the fusibility is going on. True, he does not tell us of what that covering was composed. It might have been sand and gypsum, or gypsum and asbestos, or sand and kaolin. Either composition answers the purpose, and will not shrink a particle if properly applied.

That all this process given by Delabarre, or some other similar to it,

was fully carried out in France, in actual practice, seems to be sufficiently proved, and the evidence recorded, in vol. 6, No. 3, of this journal, where you give a partial description of the teeth worn by the late Aaron Burr, which were constructed on similar principles, in France, many years since.

Now, with all respect for the parties interested, I cannot perceive the foundation for a claim of originality, by any one in this country, for the principle of uniting teeth already baked, to a platina plate, by means of a fusible body, or "silicious cement" or any other substance of that nature. Each operator may use a different composition, and construct his work by a different mode, and doubtless, if he choose, obtain a patent for his particular improvement. Doct. Harrison's composition is entirely unlike the Cincinnati "silicious cement" and the body which I prefer, resembles neither, any more than they do that recommended by Delabarre himself.

But for Doct. Harrison, I think all must admit the claim for originality. Who ever before heard of whole upper sets of teeth, baked in one piece, to fit the mouth with sufficient accuracy to be worn as an atmospheric plate.

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### PATENT METHOD OF ENAMELING TEETH.

We have been told that W. S. McIlhenny, of Philadelphia, has taken out letters patent for a new method of enameling and coloring porcelain teeth, by which the laborious process of penciling each tooth, to cover it with enamel and give it the proper tint, or dipping the front of the biscuit in liquid enamel, and afterwards painting it with the metallic oxides, to procure the proper color, is entirely superceded. We have not seen the specification of Mr. McIlhenny, but learn that the patent method consists in first placing the coloring matter and enamel in the mould, and afterwards filling it up with the body.

The following discription of a similar plan, is taken from Fitch's Dental Surgery, but whether the same as patented we cannot say. The directions for making porcelain teeth in Fitch's work, are translated from the French of M. Audibran.

"In the application of enamel, there exists another method, which we have equally employed. It is this; make enamel of the same consistence as that of the paste; put a certain portion in the bottom of the mould; put again upon the enamel a sufficient quantity of paste; fill

up the mould as usual ; make the grooves of which we have spoken, and put in the cramps."

"The teeth moulded thus, need not undergo the operation of hardening ; (biscuiting) they are then put in a porcelain furnace without having previously undergone a preparatory baking."

We alluded to W. S. McIlhenny & Co's teeth in the Dental Recorder for November. They are very life-like, and as the enamel and body are more homogeneous than most mineral teeth, the expansion and contraction of each is so equal that they cannot fail to stand the test of the blow-pipe, when properly applied, without cracking.

Since the above notice of these teeth, we have learned that their method has been patented, though far from being original or practised exclusively by them.

Since 1847, Messrs. Jones, White & McCurdy, have made teeth in this way, and during the past year most of the teeth manufactured by them have been enameled and colored in the moulds. The great advantage of making teeth in this way is that the enamel may be put on of such depth or thickness as to give great translucency to the tooth, no more body being needed than is necessary to hold the platina in plate teeth, or to surround the hole and give the requisite strength to pivot teeth.

The principal improvement that has been made in mineral teeth for the past ten years, has been in giving them greater translucency, some changes for the better have been made in the form, but the present life-like appearance of the best teeth is owing to the translucency which makes them so closely resemble, when properly colored, a living healthy tooth. Any one accustomed to operate on the teeth, can distinguish the difference between a dead and living tooth by the difference in translucency when viewed by a transmitted light ; the live tooth having a lucid appearance, like a live, fresh egg, while a tooth that has lost the pulp shows a cloudy opaque appearance like an addled egg. The old clay body of Messrs. Stockton & Alcock, such as they made some fifteen years since, had more the appearance of teeth that had lost their pulp than such as are alive and healthy ; but the translucency of their teeth at the present time, as well as those of Jones, White & McCurdy, and several other distinguished American manufacturers, vie with nature herself, and when properly selected, often match the natural ones, so well as to escape detection.

### CROFOOT'S TEETH.

Mr. E. E. Crofoot of Hartford Ct., has sent us a card of teeth such as he is now making for the profession. These teeth are very beautiful and made with great care. In their general appearance they resemble those of Jones, White & McCurdy more than any other teeth at present in the market. They are very translucent and well colored, and the appearance of the gum so natural, that the blood may be almost seen coursing through them. Mr. Crofoot proposes to open an assortment of these teeth for sale in our city very soon, and if he does so and keeps up the assortment, we prophesy that the same success will attend his efforts, that has all those who have devoted their time to this branch of the dental art.

The City of New York is perhaps visited by more dentists than any other city in the union, and with extensive manufactories would sell more teeth to the country. If Mr. Crofoot desires to make a fortune, and that speedily, let him come to the city and establish his works in competition with those already here. In our opinion it would be better for those now engaged in the business of furnishing dentists if the stock were much greater, and the prices so reduced that every practicing dentist could afford to keep a large assortment of teeth in his own office. At any rate we know it would be better for our profession if there were more competition in the manufacture and sale of artificial teeth and other materials used in practice, and as we labor for the profession, and not for the tooth-makers, we shall do all in our power to encourage every new manufacturer who produces a really good article like Mr. Crofoot's teeth.

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### FOREIGN ITEMS.

An operation was recently performed at the Charing Cross Hospital upon a man forty-three years of age, at which time Mr. Hancock, the Surgeon, removed a portion of the lower maxillary containing ten teeth. Disease—fungus cancerous tumor.

**FACIAL NEURALGIA.**—Mr. Furguson, of King's College Hospital, has lately succeeded in freeing one of his patients from this distressing disease, by dividing the branch of the fifth pair of nerves, which was involved.

Mr. Furguson had performed the operation upon another gentleman, about eighteen months before, with entire success.

A subcutaneous section of that branch of the nerve was made, where the mental branch of the inferior dental nerve emerges from the mental foramen in the lower jaw, on the right side, cutting towards the bone. The part was dressed in the same manner as is usually done after tenotomy.

M. Jules Roux, Chief Surgeon of the Toulon Dock-yard, has lately published in *L'Union Medicale*, an able paper on this operation, founded on eleven cases of facial neuralgia, in which he has performed it. He thinks resection of a portion of the nerve preferable to nerve division, after which the two ends unite so rapidly again, and he combines cauterization with the removal of a portion of the nerve. *Vide London Lancet for Feb., 1853.*

DEATH FROM CHLOROFORM.—The Feb. No. of the London *Lancet* records another instance of death from chloroform, at the Manchester Royal Infirmary.

PROFESSIONAL APHORISMS.—The following amusing professional aphorisms, are from the pen of the talented Editor of *L'Union Medicale*, M. Latour.

1. Life is short, the making of a practice difficult, and professional Brotherhood deceptive.
2. A mans' practice may be compared to a field, on which *tact* acts as manure.
3. A medical practice may be likened to a flannel waistcoat—neither can be left one moment without risk.
4. The practitioner who is often absent, runs the same danger as a lover, for both may find themselves supplanted on their return.
5. Take great care of your first patients, ye beginners! for these are the seed from which your practice is to spring.
6. When a medical man wants to get rid of a troublesome patient, he needs only send in his bill.
7. The practitioner who expects his reward from the gratitude of his patients, may be likened to the countryman that waited to cross the river, until the waters had done flowing.
8. To ask an exorbitant fee; always redounds to the disgrace of the profession. A wealthy patient, who was asked an enormous sum by a Surgeon, after an operation, answered, " You ought to have said at first, ' your money or your life?'"

OMISSION.—In our notices of Dental Periodicals in the last number of the Recorder, we omitted to mention one or two periodicals, which at the time of penning the article escaped our recollection. Of course, the omission was unintentional.—*Norwalk Ed.*

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### HONORARY DEGREES OF D. D. S.

DR. C. C. ALLEN:—*Dear Sir*—Can you inform me through the medium of your journal, where can be found, a catalogue of the alumni of the Baltimore College of Dental Surgery. Also, on what *terms* the Hon. degree of D.D.S. is conferred by that institution, and whether those terms are uniform; I would also like to enquire whether other literary institutions, in this country, are in the habit of making a charge against those on whom *honorary* degrees are conferred, or requiring the payment of a fee on the issue of such diplomas; and whether this is regarded a legitimate source of revenue for such institutions.

A Subscriber.

We were in doubt, when the above was first received, about answering our correspondent's queries; but after some enquiries we have not been able to find that a full catalogue of the alumni of the Baltimore College of Dental Surgery, including those on whom the *honorary* degree of Doctor of Dental Surgery has been conferred, has ever been published. The names of the students who have graduated there, may be found in the files of the American Journal of Dental Surgery.

In reply to the second question, we can say that we suppose there are no “*terms*” upon which the Faculty confer the degree, but that it is intended to be purely honorary. So far as we have known, this degree has been conferred upon those, only, who had been in practice before the College was instituted, and who had attained to an honorable position in the profession. In some instances the diploma has been sent at the time the degree was conferred, but recently the College has conferred the degree afterwards and given the diploma at the request of the *Doctor* on his paying the regular fee. In this respect the Faculty of the Baltimore College conform to the usual practice in colleges and societies in England and Scotland. Several of our friends have received notice from institutions in London and Edinburgh that honorary degrees or memberships had been conferred upon them, and that the diploma would be sent on payment of the usual fee. The diploma being only an official certificate to the fact of the degree having been conferred.

# DENTAL RECORDER.—EXTRA.

## TO THE DENTAL PROFESSION.

In a late article by Dr. Hunter, entitled "Hunter's review of his reviewer," I observed a few points, in his change of tactics, which I shall notice, although it is humiliating to hold a controversy with one, who, if he can write "good English," certainly does not understand gentlemanly language, but deals his thrusts, in vile insinuations and gross invectives. Evidently the man has become reckless, and abandons himself to any assertion, no matter how false, and any expression, no matter how disgusting.

I do consider the profession, equally with myself, insulted, by having an article presented them, clothed in language so coarse and objectionable.

The first point, that I shall notice, is his assertion that my work—or that of some body else, "or his pupils" (mark the dodging points) has "failed." This information is also gratuitous, and similar to that published by him a year ago, when he stated, that he could pull to pieces with his fingers, work made upon my plan. That assertion was controverted at the time by proof positive, and undeniably, and his present attempts to employ the same kind of capital, will answer him no better purpose.

I have watched with deep interest my own work, of this kind, and since my return, have either seen, or heard from, nearly every case I have put up in this city, and in place of their yielding, or being worthless, at least nineteen twentieths of them are as *perfect* and *beautiful* as when put in the mouth, and all who have worn them express a decided preference for this style, to the usual methods.

Although I assert that work put up in this way, is far more strong and durable than any other—still I do not wish to say that they cannot be broken or destroyed, for instance, a case occurred during my absence, when by accident a set of teeth made in my laboratory was thrown with violence on the floor and broken. This set, I understand, Dr. Hunter saw, and taking it for a foundation, has made a story out of it, fully equal to that of "The three Black Crows." I have also the testimo-

ny of numerous dentists in different places, who have adopted my method exclusively in their practice, testimony to any amount, though one or two extracts will suffice; one gentleman writes, "I have put up twenty-five sets, all of which as far as I know are doing well, &c." Another writes he has "put up over fifty sets within the past year, *all* of which have given the most entire satisfaction." Cases of fracture may occur from undue violence or imperfect work, either in the preparation of material, or for want of proper care and skill in the manipulator.

I do not hold myself responsible for the work of students, carelessly thrown together, which may sometimes occur, or others, who like Dr. H., have seized upon my invention, without proper instruction or material. I think he must have predicated what he asserts of me on his own experience, for he says, "I have had many cases to reconstruct, &c." which plainly shows what kind of work he produced, before he obtained my formula.

With regard to Doct. B. F. Smith, whom Dr. H., styles my "accredited agent" I have something to say. It is true, I was negotiating with Dr. S., in conjunction with another Southern gentleman for the sale of territory, and without my consent or knowledge, and much to my chagrin, I ascertained they did offer conditions to Dr. Hunter, what they were, I know not, neither am I responsible for their acts. I expressed my disapprobation to Doct. Smith when I heard it, as I did not recognise any claims set up by Wm. M. Hunter.

Again, Dr. H., states that I "requested an interview," this is *false*, the "interview" he invited himself to, and afterwards had the assurance to put into effect, by calling on me at my office, in N. York, and he further states, that he has been approached "coaxingly, pecuniarily, threateningly," if so, it was not done by me, or any person authorised by me.

He is exceedingly amused at my accusing him of "professional jealousy" though truly he has saved me the trouble of doing so hereafter, for can any person read his last effusion, and not perceive the author to be devoured by the very passions he disclaims. But turning from this subject to another, which perchance may afford him equal pleasure, we will see what he says. "I still think, however, as I did about the 'unfledged novitiates and the sixty dentists' the failure of the work in these parts shows that my *judgment* of what is needed for a denture is superior to *all*, the professors included." Now, here is one so puffed up with conceit, so filled with vanity, and egotism, that he "still thinks", the concentrated judgment of sixty dentists, of all the professors and

Students of the Ohio Dental College, when weighed in the balance with his superior wisdom, will be found wanting, we see by this there are many more "addle-pates" in the world beside "John Allen" (who has at least the consolation of being in very good company) and really we are compelled to believe that Truth has forsaken her old retreat, the "bottom of the well" and reposes only in the brain of this second Solomon.

Will not the profession judge for themselves? Can they not see the fallacy of the claims of this man, who with one broad sweep, places as his inferiors in common sense, many of the highest in our profession, all of whom have a much better opportunity of understanding the subject in debate than he can have, and then for fear they should feel too keenly their great lack of mental ability, he most thoughtfully adds "but I take no pride in that."

Again, in a spirit similar to the above, we have another quotation, "How preposterous that John Allen should accuse me, *a practical workman in the plastic department of dentistry*, of having acquired a knowledge of any material from him, a dabbler, a mere mixer of putty, glass, and broken china, &c."

It really seems like waste of time to sit gravely down to refute assertions so false and so absurd, and were it not for the many who far away from the scene of action, know not the truth from error, I would not take the trouble. The facts are these. Before Dr. Hunter commenced learning the dental profession, and years before he ever came to this city, I was engaged in the manufacture of single and block teeth, and there are now sets of block teeth worn in this city and elsewhere, made by me from twelve to sixteen years ago—at which time I commenced my experiments in forming continuous gums, fused upon platinum plates, and no one knows these facts better than this same man, who has no conscience to restrain him, and no principle to dictate. Truly, we need not call on "Gabriel to blow his trumpet," he can do it far better himself.

Again, he says, "It could hardly be expected he should understand the meaning of the various sentences of my advice." Cheerfully I concede the point, there are many of his expressions of which I must acknowledge my ignorance. On his remarks with regard to Dr. Brown, I have nothing to say. Dr. Brown's testimony is a plain fact, and speaks for itself, and has been presented to the public so often, that it is needless to refer to it again.

Lastly, he states that, "John Allen conceived the brilliant idea of uniting teeth to each other, and to the plate, by means of a fusible silicious cement, in 1851." Mr. Hatch testifies under oath, that he saw beautiful specimens of this style of work, done by me in 1848. Mr. Englebrecht states, that he saw specimens of this work, when he called at my office, in Oct., 1849. It is not surprising that Dr. H. disapproves of testimony so much to the point, and advises me to apply it to other uses, rather than refuting his statements. True, it does seem like wasting ammunition on small game; but as we have plenty of it in store, we can afford a cannon shot for every squib he fires.

I did not intend again noticing any thing from the pen of Dr. Hunter, as the suits for libel, and infringement, which are now pending against him, will elicit all the facts.

J. ALLEN.

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### A CARD.

"The turpitude with which the plot was fraught, in order to make me surrender my rights to others without remuneration, is such, that the perpetrator is now called upon to render an account before the proper tribunals of his country." The nation is safe!!! Such is the announcement made by John Allen in the advertising pages of the Dental News Letter.

It is true that I have received legal notice that John has at last entered suit against me, or rather two suits, one for libel, in the sum of \$10,000 damages!!!! and another for *infringement of patent* in a like amount.

As to the first, I must inform those persons living out of the state of Ohio, that we have lately adopted a new constitution, and that constitution grants to each citizen the inestimable privilege of telling the truth if he please so to do, and rest assured that my veracity will not suffer in the forthcoming trial. The learned professor, however, will not be able, when I am done with him, to exclaim—

"Our withers are unstrung."

The other suit I have courted, and am ready to meet the gentlemen patent mongers and their abettors, and show who has been guilty of ungentlemanly, unprofessional, and immoral conduct. I will sustain every accusation I ever made, and probably be able to show by a *chain pump* of evidence, that truth may be brought up from her resting place at the bottom of the well, notwithstanding the efforts to keep her there by a mere tool of a faction, who would fain arrogate to themselves the representation of the profession of the west.

The suits are evidently entered for the purpose of gaining time, that more *tribute money* may be collected by the great originator, and that too, under false pretenses. He might as well attempt to extract a tooth with a looking glass, as to attempt to prove an infringement on me. I think I should hesitate to use even a good thing coming from such a source, so great is my contempt.

Not only will he fail to get damages against me in that suit, but on the contrary, I will bring such evidence to bear, that I will invalidate every right granted under the letters patent. Failing to do which, I promise to give my head to the profession for a foot-ball.

Let it be understood, that I am ready for trial when the dockets are called, there is no back out in me, no compromise will be accepted, no faction can scare me—war to the knife, and

"Damned be he that first cries hold, enough."

W. M. HUNTER.

# NEW-YORK DENTAL RECORDER.

Devoted to the Theory and Practice of  
**SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.**

Vol. VII.

MARCH, 1853.

No. VI.

## EXTRACTION OF TEETH.

BY DR. J. TAYLOR.

We propose giving two or three short articles on this subject, giving a description of some of the forceps and other instruments we use in this operation, their mode of application, &c.

This operation we are glad to say, has lost much of its terrors in the last few years. This is mainly attributable to the improvements which have been made in the instruments used, and these improvements have special reference to the forceps. When we commenced extracting teeth (in 1827,) the key was *the great instrument*. This was used by Dentists and Physicians, to almost the exclusion of forceps and every thing else. We confess we have a kind of reverence for the old lion which has been kicked out of our cases and lays rusty and stripped of his glory in some old drawer, along with some fragments of hippopotamus tusks. Occasionally we bring him forth, and rub him off, and give him a taste of battle and blood again. We almost conceive he feels gratified at the little notice we thus pay him. We have always thought he was very tame and tractable in our hands, for he never treated us shabbily but once; and to make the case more aggravating, he took advantage of us when very weak and feeble from an attack of pleurisy; he then jumped clear out of our hands, also out of the patient's mouth, and with his *claw* wounded us on the forehead. We know not, if we could ever have forgiven him this rudeness, but the patient happened to be a doctor, and we suppose he had abused the tribe, and he wished to take revenge on him, and our wound was a mere accident, being somewhat in his way. Out of respect for his memory we shall first introduce him to our readers. He has an ivory handle with a silver band around either end; his body is curved a little like the camel, with the hump flattened and elongated, this throws the handle a little lower than it would otherwise be and brings it on a line with the fulcrum. Origi-

nally he had a snout something like the elephant, extending some quarter of an inch beyond the fulcrum; this was arranged for the adaptation of a hook or *claw*; but we thought it a useless appendage and cut it off. The fulcrum did not suit us either, for it gave too much latitude to his rotary movements, so we filed it down, flattening the sides so that they were adapted to the rounded labial and palital face of the teeth. The most depending portion we rounded off, and thus reduced somewhat the length. The claws (for he had five or six) we sharpened, and the largest one we trimmed to fit between the bifurcated labial roots of the superior molars. The next in size we similarly adapted to the inferior molars. His smaller *claws* we grooved and adapted to fit the roots of the bicuspids. For the front teeth he appeared never to have a liking, and we felt no disposition to enforce a taste so entirely repugnant to his nature. What is a little remarkable, he always showed *his wisdom* in wishing to avoid the *wisdom* teeth. Whether this was owing to the deprivation of his snout we know not, yet being the only ungovernable part about him, we consulted our own taste in its removal.

Having thus tamed and trimmed this remorseless tyrant, we give him the use of but one *claw* at a time, and to make his application a little more easy, we take a fine napkin, or silk handkerchief, and after doubling pass the end or corner about twice around the fulcrum, and then nearly roll it back on the bar or handle; thus harnessed he is fit for duty.

In the application of the turnkey some diversity of opinion exists; some generally applying the fulcrum on the outside or labial portion of the teeth; others generally reversing this order. The latter we prefer as a general rule; and think it most in accordance with the position of the teeth, and the direct application of the force for their removal. The upper margin of the alveolus, which surrounds the teeth in the inferior maxilla, is generally on a higher level on the labial than palital face of the teeth. This is true also in relation to the teeth of the superior maxilla. In the use of this instrument, it is well to be remembered, that we cannot much change that force being applied for the removal of the teeth. There is less resistance when the force is so applied as to draw from the higher edge of the alveolus. The under teeth incline, generally, a little inward; and when the fulcrum is placed on their palital face, the power applied with the hook more directly draws the tooth on a line with the direction of the alveolus. The lower down upon the neck of the tooth the hook is placed the better. In the use

of this instrument, the great difficulty generally is, that the fulcrum gets too low for the point of the hook. When this takes place, the application of force does not raise the tooth direct from the socket ; but pulls it transversely across, forcing open the alveolus, and tearing the teeth out by fracturing the alveolus ; or as is often the case, breaking the teeth off. We remarked that we had flattened the sides of our fulcrum. This was done, so, that as the first turn of the instrument was made, the back of the fulcrum should throw in, on to the upper margin of the alveolus, against the neck of the tooth.

The manner in which we hold the head of our patient, the instrument, &c., is as follows. In the extraction of the under teeth, we stand to the right, and a little before the patient. Sometimes, but not often, we may take our position on the left. The head is kept about straight with the body, and not thrown back. The palm of our hand always is on the top of the handle, and not thrown under; which turns the arm, and does not give unrestrained motion to the muscles. This position of the hand, it will be seen, renders it necessary to use either hand, for the extraction of teeth. On the left side, the left hand takes hold of the handle of the instrument; and for the right side, the right hand. A little practice will make this familiar, and perfectly easy. We prefer holding the handle of the key in our left hand; although not left handed. This is because we regard the position and use of the other, as equally important. We are about applying the key to a left inferior molar; the left hand grasps the handle of the instrument; we are standing a little in front, and to the right of our patient, the palm of our right hand (or rather fingers,) is placed under the chin and inferior maxillary; the thumb is passed inside of the lip, and rests upon the top of the hook; and we embrace firmly between the fingers and the thumb, the jaw and the hook of the instrument. We are thus enabled to press the hook down to the edge of the alveolus, and with the fore-finger of the left hand, guide the bar of the instrument in the adjustment of the fulcrum. The key, when thus adjusted and held, can scarce fail to act properly; and gives us perfect mastery over our patient; so that the head cannot be jerked from us; or the instrument thrown off the tooth. This arrangement, also gives stability to the moveable lower jaw. The adjustment is reversed for the right side; so that the thumb or fore-finger always rests on the hook of the instrument. We first feel that the hook is put to its right place; and we hold this to its place until the tooth is removed. This enables us also to bring with ease, the fulcrum to its

place ; and feel assured that the entire adaptation of the instrument is right. As the fulcrum is felt taking its proper position on the tooth, and above the alveolus, we apply the force requisite to the removal of the tooth. After we have made the turn necessary for this, and the tooth hangs, or is not entirely freed from the socket and gum, we may, by keeping our hold on the hook, disengage it, and lift it out of the mouth.

We have seen operators carefully adjust their instrument—then let go the hook and apply both hands to the handle and turn as if the head instead of the tooth was to be removed. We have a much smaller key to be used on the bicuspides, and we like it very well, using also a small hook. The adaptation and position is the same however as for the molars, but requiring much less force for their removal. We have so felt the necessity of the application we have alluded to of this instrument, that all those improvements designed for holding the hook in place we have regarded as uncertain and objectionable, because we lose that feeling of security and certainty we have when we have hold of the hook.

In the application of this instrument to the teeth of the superior jaw, we have the head thrown far back, and stand on a stool at the back of our patient, so that we can look into the mouth and see the tooth we wish to extract ; here, however, we hold the hook in place with our fore-finger, still using the right or left hand as is demanded by the tooth to be extracted.

We will now state a few cases where we should change the application of this instrument.

We should do so on the lower teeth, if the tooth stood a little outside of the circle into which these teeth are generally placed. We occasionally have one tooth on either side in the inferior maxilla taking this position. The alveolus of such teeth do not point as it were to the centre of the palatal arch, but points much farther out, and the contiguous teeth impinge too closely to permit them to be drawn inwards. We have then another condition ; the result of decay. The decay is on the labial face, and there is no hold for the hook above the alveolus. These conditions more frequently take place in the inferior than superior maxilla. We may however have the conditions above named, in the superior maxilla, and should adapt the instrument to suit the case. In these cases of decay, it may be asked, where rests the fulcrum ? We answer, as near the upper margin of the alveolus as it can be held ; and

here comes the great objections. The fulcrum must have a point to rest upon; and hence if there is decay of this kind, the fulcrum is thrown above its proper position, and we not only lose the proper application of the force for the easy removal of the tooth, but we necessarily bruise the gum. Before we leave this venerable instrument of antiquity, we will give one or two cases illustrative of the manner we have used it to advantage, even under very unfavorable circumstances.

We are not one of those who believe that every thing is smooth in dentistry and that the performance of some operations is as easy as the description.

A year or two since Dr. H. of P——— a town of some eighty miles distance in the interior of this State—after suffering violently for two or three days with pain in the anterior superior molar of the left side, had a dentist of the place attempt its extraction. After two or three efforts he broke the tooth just above the gum. He came to our city determined to have it removed. Before I saw him, he had one of our best dentists attempt its removal with the forceps. The tooth had broken above the decay—but left as was supposed, a sufficient hold above the alveolus. This hold in the last effort was broken away on the labial neck of the tooth. The Dr. having great confidence in the key called and requested us to try one on his tooth. We first cut away a portion of the alveolus on the labial side which covered the union of the roots, and with a large and pointed hook, which we forced between the roots, letting the fulcrum rest on the upper border of the alveolus and against the palatal neck of the tooth which projected a very little above—we succeeded in turning it out without any difficulty. The success was here so easy that he would scarce let us apply a forceps for the removal of a lower dens sapientiæ. This, however, we did, and somewhat redeemed the character of the instrument in his estimation. It may be said, after having removed a portion of the alveolus, could you not have removed the tooth with a forceps? We think we could. But from the repeated failures with the forceps and as we felt assured in the hands of good operators, we knew the tooth must be firmly attached and would require perhaps all the strength we had for its removal, and we felt that with the key we were certain of success. Here it will be born in mind the hook was higher up than usual and had its proper position with reference to the fulcrum allowing this to be a little higher than usual also.

One other case and we will dismiss this instrument. A few years

since, a large, firmly knit Norwegian, called at our office, to have his teeth put in order. Both anterior superior molars were decayed too far to fill and for the preservation of his other teeth we advised their extraction. With a remark, do as "you think best," he placed himself for their removal. We saw his teeth looked large and formidable and prepared ourselves accordingly. But with all the power we could exert with the forceps the tooth moved not. A second effort was alike unsuccessful. The tooth was too strong to break by proper force. We applied our key with our usual hook. The first effort broke our hook. Here was a dilemma; but we recollect we had an old hook or two made by a smith, very large and strong, for a key of the old stamp. We selected one of these—prepared the point and fitted it to our key and with our instrument thus armed we succeeded admirably. We supposed our patient was now willing to quit, but he was of "sterner stuff" and we again tried our forcesp feeling determined to test its power and he said we did not hurt him much. But it would not do—so we again fell back on the key and the old Lion never fails. We have but few such Norwegians to extract teeth for. We believe this is the only one. We had however, one Englishman who laughed at us while we were pulling at his tooth with a forceps. We threw it down and turned the laugh with our key. The first turn of our instrument the tooth flew into the middle of our office. It cracked like a pistol and we both thought it broken until we found the tooth and saw each root perfect.

We have no doubt there are those who can take out such teeth with the forceps better than we can. To such we would say they have no need of the key. We are glad to say that we meet with but few such cases. We, however, intend giving the difficulties we meet with in this operation (the extraction of teeth) and the manner of surmounting them. If any one else has a better method we hope they will give it. We regard the forceps as the instrument for this operation and in our next shall speak of their construction, application, &c.

*Dental Register.*

J. TAYLOR.

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#### DENTITION, CONVULSIONS, ETC.

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In the Dental department of the January number of this Journal, I observed an article taken from the *American Journal of Dental Science*, on "the cure of convulsions by lancing the gums." My attention was particularly directed to this case from the fact, that only the day before,

in company with another physician of the city, I was called to see a child similarly afflicted. The ordinary treatment, such as anti-spasmodics, emetics, friction, warm bathing, &c., had been used, but convulsion still succeeded convulsion. Upon examination, we ascertained that the gums were somewhat swollen, and regarding their condition as the probable source of irritation, we forthwith resorted to deep and extensive incision. Blood flowed freely, and the child was not only instantly relieved, but so far as I know, permanently.

All observation among medical men proves most conclusively, that there is no period of human existence more immediately surrounded by circumstances militating against health, or constantly threatening death, than that of infancy; and especially the period of dentition. And yet, these same medical men have never given to infants the patient philosophical consideration which their diseases seem to require. Indeed, we know of no department of practical medicine in which physicians generally are so culpably ignorant.

If a child, while teething, has diarrhoea, why the doctor looks wise and prescribes chalk-julep, blue powder, or cinnamon tea, probably each; and if the patient dies, it is easy for him to assume a sanctimonious air and exclaim "Bless the dear little creature, it is taken from the evil to come." But what knows he of the pathological condition of his patient, or what has he done to *relieve disease*? The fact is, we have long and obstinately shut ourselves out from an amount and character of information derivable only, (under existing circumstances) from educated members of the dental profession, which, if known to medical men, might have proven of incalculable benefit.

Every body knows that there are now many thoroughly educated medical men, devoting themselves to Dental Surgery as a *speciality*; some of whom constitute the most useful members of our medical associations. But out of these societies, what do the mass of physicians know of their special investigations, or periodical literature? We are convinced that the more intelligent members of the medical profession will see, with pleasure, that this department of the remedial and healing art is beginning to receive the consideration which its importance so much demands, and that in our division of labor, it is here entrusted to one whose energy, talents, and professional learning, will enable him to bring rich and abundant stores of useful, practical information from the Dental, and present them to the Medical profession.

W. P. JONES.

*Southern Jour. of Med. and Phys. Sciences.*

## PRACTICAL HINTS TO THE DENTIST.

We do not expect to give, under this head, anything particularly novel or interesting to the experienced practitioner, only designing to throw out, in a desultory way, a few hints that may prove a guide in some respects to the novice in the more common dental operations.

*Filing the Teeth.*—This operation is chiefly resorted to, first, for the removal of caries in its incipient stage; secondly, for the separation of the teeth preparatory to plugging; and thirdly, for reducing the length of those longer than their neighbors, as is often the case with the front teeth, or for smoothing and polishing them when roughened by wear, fracture, &c.

The separation of the teeth by the file is not admissible, except in case of actual decay, and even then in quite young patients it had better be dispensed with if possible. If the decay has but just commenced upon the enamel, let the teeth be separated by "wedging;" for this purpose wood, India rubber, cotton, &c., have been recommended; we prefer narrow strips of lamb-skin pressed between, and cut off even with the teeth within and without, increasing the thickness of the strips or doubling them as called for. Then smooth and polish the surface of decay. When necessary to plug the teeth of such subjects, space should also be obtained by wedging as above, especially if the file be not required for other purposes. With adults, where the jaws are fully developed, and the teeth have acquired the compactness of structure pertaining to maturity, this operation is much less objectionable. Still it must be regarded as the least of two evils, and in some cases even here it should only be resorted to as the least of two *great* evils.

In all separations the filed surfaces are to be made smooth and polished, and a shoulder should be left at the base of the separated teeth, to prevent their closing up again, and to enable the patient to keep the approximal surfaces clean by ordinary attention.

Patients are always fearful that the dentist will separate their teeth too widely; a greater fear is that he will not separate wide enough—not enough for the thorough extirpation of incipient decay, nor for the perfect insertion of a filling, if this be the object, nor for the prevention of a subsequent closure of the space. These things not attended to, the end to be accomplished is very frequently defeated.

In cases of decay where the cavity is large and its margins thin and weak, the separation *must* be free and wide, unless indeed its walls are

equally thin to the full depth of the cavity, or unless it be in a front tooth where *appearance* is more an object than permanent utility.

As a general rule the separation should be made something in the form of a triangle truncated at its apex. In the back teeth, where not exposed to view, the apex points towards the gum. In the superior front teeth it points externally, these teeth being filed away chiefly from the internal edges of their approximal surfaces. This has several obvious advantages in convenience and utility, as well as appearance, and in appearance not only by concealing the extent of the space made, &c., but in preserving that peculiar beauty of each individual tooth, which results from its anterior surface presenting a gradual and uninterrupted curve, whereby the impression is conveyed of a complete circle. Hence the unnatural aspect when a segment is removed by the file.

The separation of teeth may often be effected by the use of strong pointed instruments; in a great many cases the most of the labor can be accomplished in this way with greater facility than by filing, while it is also less disagreeable to the patient.

*A "New Form" of Arsenic for destroying dental nerves and obtunding the sensibility of the dentine.*—Arsenous acid is no doubt the most prompt and efficient agent as yet known for the above purpose. We have, however, found that arsenic in its *metallic form* possesses advantages over the former in many cases.

We have used it as obtained from the shops and sold under the common name of "fly stone," which is the metal slightly oxidized—a sub-oxide, called "grey oxide of arsenic." It is to be finely pulverized, and is used in the ordinary way, for destroying a nerve. When employed to remove the sensibility of the dentine, we apply it either by means of white wax or gutta percha softened by heat. Having dried the cavity, take a bit of wax or gutta percha and touching the powder with it until sufficient adheres, introduce it to the desired place. The wax is then smoothed off level with the cavity, where it may be suffered to remain from a day or two to a week or more. We have always found it effectual.

Applied to a nerve it is slow in its action, but we have not found it to produce pain as is frequently the case with arsenous acid. It seems to act for the time upon the point of contact only, so that in destroying a nerve it has to be re-applied every day or two; often for a week.

For removing the sensibility of a tooth we regard it invaluable, as there can be no danger of its affecting the nerve within, like that we

have cause to apprehend from arsenous acid. The agent acts only upon the surface with which it is in actual contact.

We have no doubt but that arenic, in the metallic or native state, might be found of great value in medical practice, especially as a local application in many cases that will suggest themselves to the physician. It seems to have received little investigation as a medicinal agent being barely alluded to in the books (with but a brief description of its physical properties) as a prelude to the more active compound which bears its name. We hope some of our medical friends will test its virtues.—  
*Ibid.*

B. WOOD.

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### LETTER FROM DR. S. P. MILLER.

*To the Editors of the New York Dental Recorder:*

I this morning received the Feb. number, and, in reading Dr. Cone's communication, was again forcibly reminded of a fixed determination, in certain quarters, to misrepresent and place me in a false position before the dental community. Mingled with the regret that a man of Dr. Cone's professional standing should have put forth such statements, is the satisfaction that he has more fully and *publicly* defined his position and brought the subject of "treating exposed dental nerves" before the profession in its present form. I will here remark what I may have occasion to repeat, in substance, hereafter, that, on my arrival at Newport, which was *after* nine o'clock in the evening, I soon met with Dr. Bridges who assured me that the "business was all done and the meeting adjourned," and, in answer to my inquiry as to the *cause* of so short a session, he replied that there had been but "little business before the society." I wish it to be borne in mind, also, that it has been customary to hold the session three days, and never before, to my knowledge, has the Society adjourned on the second day—that I arrived late in the evening of the second, expecting to be present on the third day.

"One story is good until another is told," and, all I ask of the dental profession is, a suspension of judgment until *both* sides are fully heard, and, if I do not sustain my *original* position in *all* that is *material*, and demonstrate fairly, and to the satisfaction of *disinterested* parties, that my experiments, of amputating the nerve, removing the dental pulp, &c., resulted in the *general* practice of "wounding the nerve as little as pos-

sible, either with the excavator or drill,"\* several months before Dr. Cone knew the *nature* of Dr. Hullihen's operation, (first made known to him, (Dr. C.) by letter, "during the winter of 1850 and '51,") nearly two years prior to Dr. Cone's published report, I will cheerfully and quietly abide the consequences. With an air of authority, Dr. Cone says, "I shall not permit the introduction of new issues in the debate." I do not fully comprehend the *extent* of his meaning on that point, what his *apprehensions* may be, whether they forebode good or ill, is best known to himself, but of one thing I most respectfully *assure* him, that a *future* number, (not now designated,) will determine *what* he will not only "permit," but *admit*.

S. P. MILLER.

Worcester, Mass.

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DR. CONE vs. DR. MILLER.

MR. EDITOR:—To-day, while penning a few paragraphs for publication, explanatory of some crude remarks of mine at the annual meetings of the American Society of Dental Surgeons, at Philadelphia, in 1851, and at Newport, in 1852, the Recorder came to hand. The article from the pen of Dr. Cone, I have carefully perused, not overlooking the insinuations, inuendos, and implications following (the frequent use of) my name throughout the whole paper. Without stopping to notice these, and one or two attempts to invalidate my veracity, and then again to hold up my language to ridicule, I say without more than to enter my protest against the whole as ungenerous, unkind and uncalled for, I will give the remarks before penned leaving off the preface. My remarks made in Philadelphia in relation to a new discovery in the treatment of exposed nerves in teeth, by a "friend of mine" (meaning Dr. Miller,) were made without any premeditation or any authority from him, whatever, and came up incidentally more than by any design. However, as these remarks have been often referred to, and criticised by the controversialists, I deem it proper to make explanations, lest my silence should be construed to my entire ignorance of the subject controversial, and to the disadvantage of Dr. Miller himself; whose only error in the publication of his first article was the absence of courtesy toward Dr. Hullihen, knowing as he did, that Dr. Hullihen had, through Dr. Cone, made a full and fair expose of the operation &c.

* Quotation from a description of the operation, contained in an original manuscript, dated "Oct. 12, 1850," which will hereafter appear duly attested.

The language of mine referred to, was brought out from the spur of the moment, and I am willing to acknowledge, was ineffective, inelegant, and ineloquent. Indeed the subject was quite immature with me, and now I think that the operation was not generally understood, but in answer to a question by Dr. Foster or Dr. Westcott, (not reported) I stated in substance that a festoon of the gum was raised, and the nerve (by passing a small drill through the neck of the tooth to its cavity) was amputated, the excised part then removed, and the filling proceeded with.

In the interim between the meeting at Philadelphia, and at Newport, I had several times performed the operation with success, but supposed it important to amputate the nerve and to remove the part so amputated before filling the tooth. In July last, I was several times in Worcester, and spent my leisure hours with Dr. Miller. It was at these meetings, that he instructed me fully, and thoroughly, in the modus operandi of his novel practice in the treatment of exposed nerves. The only difference in his practice *then*, from his former method (as I had understood, and practised it,) was that he passed his drill through the gum, alveoli, and fang of the tooth to the nerve, so as to draw blood, and then by filling directly on the wounded part completed the operation. It was at Dr. Miller's office in Worcester, Mass. that Dr. Bridges "*had just learnt from Dr. Miller*" that since the last meeting Dr. Miller had sometimes punctured the nerve." In one of these warm days in July, I sat (by permission of the patient, a Miss of fifteen summers,) directly in front of her, fanning her, while Dr. Miller filled for her, four front teeth, two of which he performed the nerve-puncturing operation upon, identical, perfectly, with Hullihen's operation as described by Dr. Cone, not one month after, at the meeting of the Society at Newport. When I arrived at Newport I was as well informed in the theory of Hullihen's operation as Dr. Cone himself, and after hearing his, (Dr. Cone's,) paper read, had I known nothing more of him than to have learned that he came recently from Worcester, I should have said at his close, Doctor you have not only pirated Dr. Miller's operation, but you have also robbed him of his papers ; I rose at the time to explain, but was interrupted as Dr. Cone says, by himself. He said, "Miller's operation as you said at Philadelphia, is performed by amputating the pulp, &c." Dr. Cone will well recollect, that this was all after a tedious days business, and at the close of the session ; and further, Dr. Cone himself had been interrupted and compelled for want of time, to omit reading much of his own very instructive, and highly interesting paper before the Socie-

ty. I of course, had no time to expatiate, I had prepared nothing. Dr. Miller by agreement was to meet me at Newport, and it was arranged that as I had heretofore touched upon the subject at Philadelphia, I should, at a proper time in the session of the Society, introduce the subject and Dr. Miller was to follow with a full description of the operation, and records of over two years successful practice.

Now, with the controversy I have nothing to do, my only desire is to set the matter right so far as I am identified with the subject.

Dr. Hullihen to my mind, has shown by indisputable testimony that he has the priority of discovery. Dr. Miller has shown by as good testimony that he was contemporaneous with Dr. Hullihen, in the past three years, in experimenting to perfect the very same operation, and this without any knowledge of each other's discovery. Dr. Miller did not arrive at Newport until about, or after, nine o'clock in the evening. Dr. Cone says, "Dr. Bridges announced on the floor of the American Society of Dental Surgeons, while in session, that Dr. S. P. Miller was then in Newport, and at the house in which the Society was then convened." Dr. Cone, or myself, or perhaps both, are honestly mistaken, I think better of him than he does of me, and would not so much as *insinuate* that his veracity was questionable. What I have written I *have* written and would not *change* the substance of a sentence if it were the last record of my life. With this averment on my part, I hope soon to hear that this unprofitable controversy is settled for ever.

Brooklyn, March, 1853.

MARTIN K. BRIDGES.

109 Henry Street.

TESTIMONIAL TO PROF. JOHN ALLEN.

Cincinnati, Ohio, Feb. 19th, 1853.

SIR.—The students of the Ohio College of Dental Surgery, whose names are appended, avail themselves of this opportunity to acknowledge their obligations to you as their instructor, and to express their warmest thanks for the uniform kindness with which you have fulfilled the more than arduous duties (at a personal sacrifice) which, by a combination of circumstances, have devolved upon you.

They are also desirous of manifesting their keen appreciation of the liberality with which you have devoted the result of the efforts of years for their benefit, deeming your patent the "beau ideal" of dental per-

fection; and they assure you that these kindnesses will not only be gratefully remembered, but serve as a vigorous stimulus for the attainment of professional excellence. In conclusion, feeling a deep interest in the prosperity of the institution, they trust that no unforeseen circumstances may prevent you from resuming the chair you have so ably filled.

To PROFESSOR JOHN ALLEN.

J. F. Johnston, Indianapolis, Ind.; Geo. Laurie, N. Y. City; W. H. Eames, Ann Arbor, Mich.; D. W. Rondebush, Batavia, Ohio; J. M. Lewis, Marion, Ill.; M. W. S. Kendall, Cincinnati, Ohio; H. J. Marquam, Darlington, Indiana; H. A. McDaniel, Todd Co., Kentucky; J. M. Bradley, Cincinnati, Ohio; J. Richardson, Cincinnati, Ohio; Joseph Payne, Gallipolis, Ohio; H. T. Manlove, Bainbridge, Ohio; Calvin King, Pittsburgh, Pa.; S. B. Dunlap, Chillicothe, Ohio; J. E. Jones, Dayton, Ohio; James T. Irwin, Cincinnati, Ohio; John Lea Milton, Lexington, Mississippi.

Editors Dental Recorder New York.

GENTLEMEN:—I forward you the enclosed at the request of the dental class, who are its signers, and for them, ask the favor, of its publication in the Dental Recorder.

Very Respectfully, &c.

J. F. JOHNSTON, D. D. S.

Indianapolis, March 10, 1853.

THE USE OF CHLOROFORM.

The Philadelphia Medical and Surgical Journal contains an article, written by J. C. Bennett, M. D. and read before the Medico-Chirurgical College of Philadelphia, the object of which is to show that chloroform is a wholly "innocuous agent." Says the writer:—

"Among all the discoveries which have distinguished the present age, there are none which have higher claims on human gratitude than those which have opened the way for the alleviation of physical pain. The opprobrium of surgical science has hitherto been the necessity of inflicting a large amount of suffering as the condition of successful operations, and generally in exact proportion to the delicacy and danger of the case."

After enumerating the various substances which have been tried for

the purpose of mitigating pain the writer concedes the palm to chloroform. Says he :—

“ Chloroform is now generally acknowledged to be the best of all anaesthetic agents, and has taken its place among the most valuable of all the *materia medica*. It has not obtained this position, however, without a struggle with ignorance and prejudice, and that timid conservatism which dreads alike light and progress. The partisans of similar agents have endeavored to depreciate it, to exalt the merits of their favorites. It has been decried as dangerous, for instance, in comparison with ether.”

Chloric ether, when concentrated, he assures us, contains thirty three and one third per cent pure chloroform—the remainder being nearly *absolute alcohol*. This mixture makes it less volatile than pure chloroform, while its action is slower and the effect upon the system is prolonged. The secondary effects of sulphuric ether, he says, are also to be deprecated. The superiority of chloroform over these ethers is summed up in the following extract.

“ The truth is, that pure chloroform is safer than any other anaesthetic, and is less dangerous than any other potent article used in medicine. It is the recorded opinion of Dr. Warren, of Boston, that chloroform has advantages over the other ethers. It seems to steal away the senses in a more quiet and insidious manner. There is less pulmonary irritation. The time necessary with chloroform for the production of these effects is less than with sulphuric ether. The degree of insensibility is, I think, greater from chloroform: as we do not so often notice the unconscious shrinking which seems to indicate pain. The duration of this state is also more considerable. The restoration of nervous action is more sudden and perfect. The more sudden action of chloroform, and the more perfect termination of this action, is to be attributed probably to its greater volatility, for, although a more dense liquid than sulphuric ether, its emanations diffuse themselves more rapidly, act of course more speedily, and are more suddenly absorbed into the circulation. A great advantage of chloroform is found in the comparatively small quantity required for etherization; twenty or thirty drops, judiciously applied are often sufficient. This fact has contributed much to its sudden and extensive use in this country. An additional recommendation is the absence of inflammability.”

In reference to the fatal cases which have been so frequently quoted the writer says. “ Many of these are, no doubt, without any foundation in fact; but in those cases where death has followed the exhibition of chloroform, the disaster is generally to be traced to other causes, even on the showing of its worst enemies.” He is of opinion that no prejudicial results have followed the use of *pure* chloroform in the hands of a

competent administrator. Prof. Simpson has asserted the same. The writer quotes the following from a work recently published on the use of chloroform and written by Mr. Skey, one of the Surgeons of St. Bartholomew's Hospital, London.

"The records of St. Bartholomew's Hospital point to its successful administration in upwards of six thousand cases, in not one of which, including the aged and the young, the healthy, the infirm, and the asthmatic, has its employment left a stain upon its character, as an innocuous agent of good. Under all circumstances, its careful employment may be unhesitatingly resorted to in all cases, excepting only such as are marked by determination to the brain of an apoplectic type; secondly, under circumstances of great and serious exhaustion from loss of blood; and, thirdly, in diseases of the heart. In these conditions of the system, it is perhaps better avoided.

"Against the occasional objections or convictions of others to its employment, I place the strong, and to my own mind, the unanswerable fact, that it has been successfully used in so large a number of cases in St. Bartholomew's Hospital, since its introduction; but these cases have been indiscriminately taken; and that its objections have not yet made their appearance before the observant eyes of the medical staff of that institution, either by promoting danger during the operation, or protracting the recovery of the patient after it.

"With the exceptions above mentioned, I cannot hesitate in strongly recommending its administration in all cases of large surgical operations, believing its discovery to be the greatest blessing conferred on the profession of surgery during the last century, and although I have seen its employment pushed, on many occasions, to the apparent verge of apoplexy, I cannot say even in such examples, that the good has not largely predominated."

The temporary accidents which often occur he attributes to "a want of courage and firmness." "Timid and ignorant men," he says, "are too apt to become alarmed at the point of muscular rigidity, and to stop its inhalation, which at this point, is always liable to produce bad results, if then left off. In such cases, a few more deep inspirations will produce the state of muscular relaxation which always eventuates in perfect safety." He continues, "I have never known any permanent ill effects to ensue, and am forced to believe, if there are authenticated cases of serious harm following the exhibition of chloroform, that they must be accounted for either on the ground of the article used, or the unskillfulness, or want of firmness of the administrator."

In surgical practice there can be no doubt about the propriety of administering chloroform, not only as a preventive of pain, but also, in capital operations for the safety of the patient, on this point the writer says:

" It is the opinion of Prof. Simpson, that as a counteraction to the morbid influence of pain, the state of artificial anæsthesia not only implies a saving of human suffering, but also a saving of human life. Out of 300 cases of the larger amputations performed upon patients in an anæsthetic state, which he collated from hospitals in Great Britain, Ireland, and France, a smaller proportion died, than formerly used to perish, in the same hospitals, under the same operations, without etherization. Malgaigne (1842) showed that under amputations of the thigh in the hospitals of Paris, 62 in every 100 died; in Edinburgh, the proportion was 50 to 100; Mr. Phillips, of London, found the average mortality 40 in 100; Dr. Lawrie, in Glasgow, found it also in the hospitals of that city to be 40 in 100. Prof. Simpson's notes of 135 cases in which the same operation had been performed in hospital practice upon patients in the anæsthetic state, show that out of these 135 cases but 33 died, or only 24 in 100. He concludes, therefore, and with justice, that the condition of anæsthesia not only preserves the patient in surgical practice from agony and torture, but actually preserves him too from the chances of danger and death."

The writer also highly commends the administration of chloroform in the practice of our specialty.

" In Dentistry, there is the most frequent necessity for its use. The most complicated operations are robbed of all their terror when chloroform is inhaled by the patient. I have not unfrequently extracted two hundred teeth in a single month, and in some cases, as many as thirteen teeth from one mouth, at a single sitting. All these operations have been performed without pain. The patients have sometimes even passed from the unconsciousness of suffering to the experience of pleasant reverie and agreeable dreams. The singular phenomenon has sometimes been exhibited, of the occupant of the dental chair, parting with the teeth with a smile on the countenance. When the anæsthetic state is perfect, any number of teeth may be extracted without pain, and even without the knowledge of the patient. This fact has many important relations to the future health of the patients. The nervous shock, which is often injurious in the case of extraction of diseased teeth, is wholly avoided. Every possible danger, which may arise from obstructions to the operator, and their frequent consequences, is also entirely precluded, and what is always a most painful and disagreeable experience, is changed into an entirely comfortable operation. But few people are aware how great an influence is exerted on the general health, by the retention of diseased teeth, and doubtless the pain of extraction in the usual way, prevents their removal from the mouth. But by the use of chloroform all objection, on this score, is removed, and no one need suffer from this detrimental cause."

We have, in the above, given a synopsis of the views of Dr. Bennett upon the virtues of chloroform as an anæsthetic, and its superiority over the ethers; but, in our opinion he has omitted the directions which should

be given and rigidly observed, for its administration. A few months since a young physician, who had recently returned from pursuing his studies in Europe, and spent several months in Edinburgh, where he had frequent opportunities to witness the administration of chloroform in the practice of Prof. Simpson, attended a patient, at our office, for the purpose of administering the article to him, the object being to extract four bicuspids for a case of irregularity. The physician, in this case (and he assured us that it was the usual practice with Prof. Simpson), placed the patient in a recumbent position and administered the chloroform very slowly so that it might be inhaled mixed with a large proportion of atmospheric air. From ten to fifteen minutes were spent in bringing the patient fully under the influence of it, it being continued until the system was brought into a complete state of anæsthesia. Towards the last there was considerable muscular rigidity and slight spasmody action, but this soon passed away, and the patient soon after came into a quiet slumber. Several minutes elapsed, after the teeth were removed before the patient showed any signs of consciousness, and would not then believe that his teeth were gone until he had satisfied himself by both feeling, and seeing the spaces made by their removal.

In only a few cases, if in any, do we think it necessary to push the chloroform so as to produce this *deep* anæsthesia. It will generally suffice, for dental operations, if the patient is brought into that delightful dreamy state which usually precedes the muscular rigidity, and if more than one tooth is to be extracted, and the pain from the first is too great, the chloroform may be continued longer and a more decided effect produced before extracting the second. When, however, a number are to be extracted, to prepare the mouth for a complete denture, it may be the best practice to bring the system into a complete state of anæsthesia and complete the operations as soon as possible. In this way the patient will inhale less of the chloroform than when the operations are protracted. In all cases, however, where chloroform or ether is given, care should be taken to administer it slowly, being largely diluted by atmospheric air.

The fatal cases which have occurred from its administration, have undoubtedly resulted from the use of an impure article, or from too rapid inhalation, the vapor being too condensed and not sufficiently mixed with air. Of course those present, on these melancholy occasions, are generally friends to the dentist and ignorant of the proper manner of

administering it and the strength of the vapor inhaled. Their testimony, before an inquest, is therefore favorable to the administrator, and gross carelessness, or ignorance if it exist, goes undetected. We repeat that in the administration of chloroform too much care cannot be observed in giving it slowly at first, and well diluted with atmospheric air.

EXAMINATION OF THE TEETH.

Dentists are frequently called upon to examine a set of teeth for the purpose of ascertaining whether they require any operation such as filling, scaling, &c., and it is to be regretted that such requests are not made oftener by our patients, as too many of them take special care to keep away from their dentists as long as possible, and only make their appearance, slowly, and reluctantly, after being reminded of their duty by a painful twinge, a "grumbling," or an uneasy sensation in one or more of their teeth, which is generally the indication of an exposed nerve. These requests generally come at an inconvenient moment, when the dentist is engaged with his patient in the chair, and every minute of time is taken up. Under such circumstances, there is no doubt but what the proper course would be to insist upon the patient taking an appointment, coming again, and submitting to a thorough examination; but if the dentist proposes this he is at once met with the question "Can't you just look at them? Why, it won't take you a minute." Under the force of this appeal he too often submits, gives them a hasty examination and pronounces them in good condition, and the patient departs much better pleased than if the answer had been that half a dozen needed filling, which is very probably the case.

Now, we wish to caution all our readers against these hasty examinations of the teeth, as the consequence too often is loss of business, loss of patients, and loss of reputation.—Loss of business, by frequently getting only the fee for extracting the tooth, soon after, which might have been filled at the time of the hasty and careless examination.—Loss of patients by sacrificing that confidence which they repose in their dental advisers, and loss of reputation by the story getting abroad accompanied by the accusation of gross carelessness, loss of eye sight, or too much business, and growing rich and independent.

A lady once called upon us and requested that her teeth might be examined, without saying that she had just come from the office of another

dentist (which was the case) who had told her that they were all in good order and needed no operation. We happened to be disengaged at the time, gave them a thorough examination and found four teeth that required filling, two (lower bicuspids) decayed to the pulp and in an aching condition. Another came in with a small quantity of salivary calculus burrowing under the edge of the gums around the inferior incisors, which were beginning to loosen. Her teeth had also been recently pronounced in good condition. We removed the tartar and to this day we have the credit, whether justly or not, of having saved her teeth. Still another recently told us that she employed Dr. — until he pronounced a tooth sound that another dentist extracted the next day to relieve her from excruciating pain. Let it be borne in mind that these cases occurred with women, some of whom have *tounges* as well as teeth and to our certain knowledge the stories have been often repeated : but these cases are too frequent to require further specification All have undoubtedly, either suffered or been benefited in this way in proportion to their care or carelessness.

Too much care cannot be bestowed when examining teeth for the purpose of discovering caries, as when situated upon the approximal surfaces of the teeth, it is often very difficult to discover until the decay has made such progress as to endanger the loss of the tooth. This is perhaps most frequently the case with the lower bicuspids and molars. The approximal surfaces of these teeth are slightly convex both longitudinally and transversely, and generally have their point of contact near the middle, it is near this point that caries commences and as the surfaces around it are so close together it is often difficult to pass the smallest point into the cavity. In such cases the decay may generally be detected by passing the floss silk between them and if the enamel be decomposed the rough edges will cut the silk. In the incisors caries may generally be discovered by the discoloration which it produces and the same appearance will sometimes be seen in those molars and bicuspids which are of a translucent and pearly hue. If proper care be observed during the examination caries may always be detected, either by the appearance of the teeth, with the fine pointed probe, or the floss silk, before it has made much so progress as to endanger the tooth.

Discoloration of the enamel is not always decay. It is often produced upon the anterior approximal surfaces of the first molars by the decay of the second molars of the temporary set and in a few cases will remain through life without the enamel becoming decomposed. When

this is the case the second teeth are of a firm, dense structure, and not predisposed to decay; but in most teeth this discoloration, if in contact with the bicuspid, ends in decay, and if the teeth be delicate it will be better practice to remove it with the file, taking care to so file them that the surface cannot come in contact with the tooth from which it has been separated.

When teeth have been once separated and filled upon their approximal surfaces they are apt to close again, unless a shoulder is left on each tooth near the gum. Owing to the shape of the teeth in some cases, or the extent of the caries it is not always practicable to leave such a shoulder, and the teeth will come together again and caries recommence at the point of contact. When called to examine teeth thus situated we should always find the edge of the filling, nearest the gum, with our probe, otherwise we can never be sure that decay is not going on at this point. Both dentists and patients have heretofore been so much afraid of the free use of the file, and so little judgment and skill have been displayed in separating teeth preparatory to filling that we frequently find them filled and crowded close together. In all such cases we should make it a point to separate them again in such a manner that we can see and feel with the probe all around the fillings, the teeth can then be pronounced sound and in good condition.

In the early period of our practice we were once called to examine a set of teeth to see if any operation was needed. They had been well filled by one of the best dentists in the country. Among the fillings was one on the approximal surface of a superior molar and towards the masticating surface of the tooth the filling was solid, well finished, and the dentine healthy around it. It was also separated, at this part from the surface of the adjoining tooth, but the upper part of the filling, and the portion of the tooth above it was so close to the other that a probe could not be passed between them. Deceived by the perfect condition of that part of the filling that could be seen, and not having learned from experience the danger of leaving it in this situation, we pronounced it to be in good condition. Judge of our surprise and mortification, when a few weeks after, the patient called again, with the gold filling forced up into a large cavity above, the nerve exposed, and the tooth so exceedingly painful that it was necessary to extract it.

This case serves to illustrate hundreds that we have since seen, and which, like it, might not have been discovered until caries had penetrat-

ed to the pulp, if we had not separated them agnин as far as the filling extended, so as to thoroughly examine every part of it.

Examinations of the teeth should be made at least semi-annually, from the cutting of the first molar to the age of twenty-five, or as long as the teeth show signs of active decay, and time should be taken to make them thorough and methodical, beginning with one side of the lower jaw, proceeding from tooth to tooth around the mouth and returning by the upper. When it is completed the dentist should be sure from positive knowledge before he pronounces the teeth in good condition. So far as we have known it is not customary to charge a fee for examination of the teeth unless it is found necessary to perform some operation. How far this may influence the dentist and induce careless and hasty examinations we will not say; but in our opinion there is no good reason why we should not be remunerated for time and skill spent in this way, and we think that if more time and care were generally bestowed upon them, that no liberal person, would expect to receive them gratuitously.

THE (SYRACUSE) NEW YORK COLLEGE OF DENTAL SURGERY.

This institution held its first annual commencement in the College building on Tuesday evening, March 1st. The following was the order of exercises.

1st. The Valedictory address by Prof. R. F. Stevens. The subject selected by the Prof. was the necessity and advantage of a knowledge of medical science to the practising dentist.

2nd. The presentation of Diplomas, conferring the degree of Doctor of Dental Surgery upon the following graduates; B. F. Wright, W. W. Alport, I. D. Kilbourne, B. C. Lefler, L. G. Bartlett, W. Dafrimble. This part of the ceremonies was performed by the Dean of the Faculty, Prof. A. Westcott, who complimented the graduates in high terms for their high and rare qualifications.

3rd. Address to the Graduates. This duty was also, unexpectedly, performed extemporaneously by Prof. Westcott, and was replete with the sound common sense for which he is distinguished.

After the exercises the Faculty, Board of Examiners, Directors, Graduates and several invited guests repaired to the residence of the Dean and partook of his hospitality, which we have no doubt was most generously and profusely bestowed. Thus is the New York College fairly

afloat and ready to compete on fair and honorable terms with its older and younger competitors. We wish it success, and trust it may be influential in making the name of Dentist more honorably and favorably known than it now is throughout our country and the world.

THE PHILADELPHIA DENTAL COLLEGE.

This new institution went into operation last November, and held its first Annual Commencement Feb. 28, in Sansome Hall, before a numerous and highly respectable audience.

The following graduates received the degree of Doctor of Dental Surgery, from Prof. Townsend :—S. Townsend Brown, Geo. W. Emerson, J. S. Gilliams, H. Garrett, R. Allison Miller, and A. B. Williams.

The Honorary Degree was also conferred upon the following, mainly dentists who have been many years in practice :—Wm. Bradley, M.D., S. T. Beale, M.D., S. Dillingham, J. F. B. Flagg, M.D., W. W. Fouche, J. Gilliams, M.D., J. M. Harris, M.D., J. H. McQuillen, M.D., S. L. Mintzer, D. Neale, F. Reinsten, Ed. Townsend, C. Townsend, Jr., D. B. Whipple, M.D., C. C. Williams, S. Stockton White, all of Phila., T. W. Evans, Paris, France, J. F. Flagg, M.D., Boston, J. Fleming, Harrisburgh, O. R. Post, Brattleboro', Vt., and W. R. Webster, Richmond, Ind.

Prof. Townsend stated the object of the faculty, in conferring so large a number of honorary degrees was to acknowledge the claims of those men who commenced practice before Dental Colleges were instituted, and who by laborious study and experience had earned for themselves equal rank with those who had qualified themselves within the college walls, or those who from their official position had now the legal power to acknowledge and certify to their ability. This course is not only just towards older and respectable members of the dental profession, but it is an example of liberality which has been set by the Baltimore College, and which we hope to see followed by other institutions just as far as it can be without degenerating into favoritism, so as to graduate the worthy and unworthy by the same scale.

The Valedictory address was delivered by Prof. J. D. White, giving a short history of the origin of the institution and concluding with much valuable advice to the students. The religious services were conducted by the Rev. Dr. Howe.

After the exercises were over the company sat down to a bounteous

repast of a strictly temperate character. Toasts were drank in cold water and responded to in warm and eloquent strains by Drs. Harris and Bond of the Baltimore College, Drs. Elder and Flagg and several other gentlemen of Phila., and the company dispersed well pleased with the success and prospects of the Philadelphia College of Dental Surgery.

DR. CONE'S CASES OF RHIZODONTROPHY.

We closed these interesting cases with the promise "to be continued" but before the publication of the next number of the Recorder we were requested by the author to discontinue their further publication until after the controversy about the origin of the operation was settled. The unpublished cases, related by Dr. Cone, in which the new operation was performed, were more successful than those already published and we hope soon to be permitted to continue them.

So far as we have heard an opinion expressed this operation is not generally received with favor; but few dentists that we have met with have confidence even to try it in their practice, though one recently informed us that he had performed it in about a dozen cases and in every instance, so far as he was at present advised, there had been no trouble except a slight soreness of the tooth for a few days. We regard the authority in favor of the operation as amply sufficient to warrant any dentist in putting it to the test, though to be successful it must be performed with great care and skill and before the pulp of the tooth has become inflamed and painful. Give it a fair trial, and if it proves successful a great triumph over diseased teeth will have been achieved. It is worth the test, and time will prove its usefulness.

PROF. BOWLING'S INTRODUCTORY LECTURE.—This address was delivered at the opening of the second course of Lectures in the University of Nashville, and it gives a very flattering account of the success of the medical department. Its progress, according to the professor, has no parallel in the country, and he indulges in the expectation that, as a medical centre, Nashville will soon have to contend only with Philadelphia, and that the southern school has advantages over even that ancient seat of medical learning. The number of students at Nashville is but little short of that of Louisville and bids fair soon to pass it, but we doubt much whether it ever overtakes Philadelphia.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. VII.

APRIL, 1853.

No. VII.

ON THE TREATMENT OF DEEP SEATED DENTAL CARIES.

BY W. H. DWINELLE, M. D., D. D. S.

(Continued from Vol. 6, page 237.)

In an article published in the April No. 1852, of the Journal, I took occasion to classify deep seated dental caries under three distinct heads.

CLASS I. Teeth, the nerves of which are only covered by softened bone, but which otherwise, so far as can be ascertained, are healthy, or are capable of being restored to health.

CLASS II. Teeth, whose nerves are by accident, in excavating or otherwise, exposed—even lacerated, but which are healthy, or are capable of being restored to health.

CLASS III. Teeth, whose nerves are incapable of restoration, and whose destruction is inevitably required.

The article referred to, embraced all I intended to say in regard to class I. Class II and III, will form the subject of this article.

If the order of teeth referred to in my former article ranks first in importance, and if it is desirable to restore nature to the nearest approach to her original condition, teeth arranged under Class II, must rank next—indeed a tooth successfully treated of this class, is recognized by nature herself as being on an equality with any of its more fortunate neighbors, whether they rank under Class I, or have never been the subject of disease. She visits them with the same vitalizing energies, endows them with the same functions of production and of feeling, and links them to herself by the same delicate bond of union.

No fact is more clear, or more abundantly illustrated, especially in our own day, than that nature, on the one hand, is endowed with the most wonderful recuperative energies: while on the other, she is capable of accommodating herself to the most extraordinary contingencies. Her principles and her actions are continually the subjects of new discovery.

(A few years ago it was considered that the living brain could scarcely be touched without fatal consequences, but since large portions of it have been repeatedly taken away without material injury, and especially since the interesting experiments of a young man in Vermont, who by carelessness in blasting, suffered a crow-bar several feet long to be blown entirely through his head, carrying away large portions of his brain, and that too, without loss of consciousness, from the day of the explosion to this—since then, the old theory has exploded too !

A Lieut. Hamilton illustrates to us how a man can survive even after the spear of a guerrilla has struck his breast, plunged through his lung and shown its bright blade at his back. Gen. Shields was a living witness that a man can sometimes be perforated in almost every vital part, and yet be stronger than death.. With accupuncture needles, we pierce with impunity the blood vessels and nerves, the stomach and brain, and the French Surgeons boast—even the heart ! Had a man once asserted that a lost nose could be supplied from the forehead, a lip from the cheek, or that a deep, contracted cicatrix occupying one-fourth of the circuit of the neck, could be dissected out, and its place supplied with healthy living flesh from the arm or breast, such a man would have been “laughed to scorn ;” and yet the rhinoplastic operation is almost daily performed. Even in our own day, to sever a tendon was to disorganize it and render it useless for ever ; now, many of the most important as well as frequent operations in surgery are founded upon the idea of severing the tendons in order that they may retract until the muscles have assumed a natural position. Nature, ever the willing handmaid of science, and never failing in her resources, pours into the void cartilaginous lymph, cementing the refracted ends together, and eventually consolidates it into a density and toughness equal to the strongest fibres of the system. Needles swallowed in infancy have traversed through the body, and in after years have come out at the top of the head or the extremity of the heel. Bones crushed to splinters, protrude through the flesh, they are forced back and replaced, osseous cement binds them together and the patient is restored. A bullet from some *careless* Indian-man’s rifle lodges in an elephant’s tusk instead of his heart, nature finding that she cannot dislodge the extraneous substance, goes to work to adapt and accommodate herself to the exigency. She first commences secreting ivory bone at the extreme surface of the tusk so as to enclose the cavity, and then gradually fills it up until the bullet is completely

inlaid in its substance; so kindly does she conform herself to circumstances.

One of the angles of an incisor tooth is broken off by accident; immediately a corresponding angle in the pulp cavity is filled up by osseous deposit; so that while the nerve retracts so as to preserve an equidistant relation to the surface, it at the same time "*covers its retreat*." The pulp of a tooth is accidentally laid bare in excavating a carious cavity, a concave cap of gold is nicely arched over it, and the tooth skillfully plugged. Months or years afterwards the inquisitive operator finding the tooth both living and healthy, is anxious to know in what manner nature has accommodated herself to the entertaining of a foreign substance in such close proximity to her most exalted and delicate tissues. He removes the stopping, the cap at first refuses to be displaced, a second effort separates it from the bottom of the cavity, when lo, he finds a white convex button of secondary dentine there, corresponding exactly to the inner surface of the cap, and even now, since the commencement of the writing of this series of articles, the new fact that a drill may perforate the living bone of the tooth and expose the nerve with impunity—even more, that the nerve may be actually severed with the positive conviction that it will unite again, and all without hazarding the life of the tooth, gives us additional assurance that the field of physiological research is not yet fully explored, and that nature has still undiscovered facilities and powers, that shall yet dawn upon the path of science and investigation.

Perhaps I have dilated too largely upon this subject; my object in referring to these facts in this connection was, that we might gather encouragement from the continued march of the past, to press forward, regardless of the conservatism which is satisfied with the partial good we have attained, and impatient with progress for hoping for better things—to press forward, until nature shall yield to the persistence which demands the opening of the doors of her secret chambers, to the development of *all* of her resources.

Our profession it is true, is comparatively prosy and matter of fact, it is difficult to clothe it with beauty or attractiveness. And yet it has points of wonderful attraction, fields of surpassing beauty, which are continually opening to the light of science and patient inquiry. Let us then press forward to our sure reward.

In an article published in vol. 7, page 74, of the Journal, I expressed what was then my conviction that "to expose the nerve is always to

subject ourselves to the necessity of removing it, * * * that it is ever unsafe to fill a tooth after the membrane of its nerve is broken," &c. &c. But my subsequent experience has created an entire revolution in my views upon the subject as well as course of practice. I am now fully established in the belief that in a large majority of instances wherein the nerve has been exposed, even to bleeding, the tooth is capable of being restored to all its functional vitality, and to unimpaired and permanent usefulness. I know the profession is and has been largely, and I doubt not, honestly, divided on this subject. I am happy, however, for the sake of the profession, in believing that confidence is continually increasing in favor of the operation. Many who a few years ago were strong advocates for the removal of the nerve whenever or however exposed, are now enthusiastic and confident in aiding nature to recuperate herself.

Although my method of treating and filling over exposed nerves, may not be essentially different from that already familiar to the readers of the Journal, I trust I shall be excused for introducing it here, if for no other reason than to give consecutiveness and completeness to the treatment of the subject under consideration.

To do this more conveniently I shall subdivide this class of exposed nerves into two subdivisions.

First, healthy nerves which have been recently exposed in the removal of caries, or by other causes.

Second, Inflamed nerves, which are exposed.

The most careful operator, in excavating a carious tooth, is sometimes liable to expose the nervous pulp, the age of the patient, the character of the caries, and the situation of the tooth in the mouth, are all circumstances which sometimes combine to favor the accident.

In excavating a tooth unfavorably situated in the mouth of a young person, whose pulp cavity is comparatively near the surface, and the color of the carious portion corresponds to that of the healthy bone of the tooth it does sometimes happen, without any preindication or forewarning, that suddenly, as if from some remote fibrous branch of the nerve, blood exudes into the cavity, when the laceration is more extensive the effusion of blood is more copious. At other times the nerve is exposed so as to be perceptible to the eye, or yielding to the touch of an instrument, and yet is not wounded so as to induce bleeding.

In treating a tooth whose nerve has been lacerated to bleeding, as above, it is my practice not to check its flow at once, but to let it con-

tinue until it has nearly exhausted itself, which will generally be within a few minutes from its commencement, then with a lock of cotton, saturated with concentrated spirits of camphor, combined with a small quantity of tannin, I wash out the cavity several times; this induces a retraction and collapse of the already exhausted blood vessels, while, in my opinion, it often, if not generally, stimulates the formative apparatus of the nerve to make immediate osseous deposit, to repair the violence which has been done. I have before spoken of the analogy between the teeth and that of other organs and parts of the system. In case of fractured bones, the system sometimes becomes indolent in its action, and refuses to secrete osseous deposit to cement the broken ends together, until the parts have been stimulated into life and action by external and internal treatment. Broken bones which have been separated for months, are sometimes readily united by laying them bare and scraping their extremities, when by irritation the sluggishness of the system is aroused to action, and an osseous flow supervenes. So with the teeth whose nerves are exposed; ossification may sometimes be induced by daily scraping lightly about the borders of the opening in the pulp cavity, protecting it in the interim with cotton, when it will soon be found that the exposed pulp is completely covered by secondary dentine.

After the bleeding of the nerve has once been arrested by the method prescribed, no fear need be entertained of its bleeding after the cavity is plugged. I have never known an instance to occur. The torn blood vessels seem to retract upon themselves, and heal at once.

Having fully prepared the cavity for the introduction of the gold, I now construct a concave cap of gold plate, and adapt it to its place at the bottom of the cavity; this is then dropped into a little dish of melted wax, on removing it, it will be found to be very thinly coated over with wax, so thin as scarcely to be perceptible. This gives it a non-conducting surface, while the wax about its edges, which come in contact with the bottom of the cavity, will enable you, with great certainty, to keep it in its place. The cavity being thoroughly dried, the cap is arched over the nerve, several rings of foil are first introduced and consolidated about the edges of the cap, when the operation is completed in the usual manner.

Teeth whose nerves are exposed, but do not bleed, are treated in precisely the same manner, with the difference, of course, that the operation is not retarded by bleeding. The camphorated spirits I always

use in treating teeth of this character, it seems to combine the very desirable qualities of a sedative and a stimulant.

Dr. Harris, who has written extensively and clearly on this subject,* prefers arching the gold foil over the exposed nerves, thus constructing a cap at the time of the filling of the tooth. After properly preparing the nerve and cavity, he commences introducing the gold, "by placing the folds on one side of the cavity, and inserting fold after fold, without carrying those immediately over the exposed part of the pulp to the bottom of the cavity, until every part, except a small space over the nerve, is thoroughly filled. The folds should be pressed so compactly one against the other, as to prevent their inner extremities from being forced against the exposed pulp in the consolidation of the protruding part of the filling. The gold should now be thoroughly condensed, and the surface finished in a suitable manner."

In many cases, this manner of capping the nerve is preferable to the other method, but the plate-cap is altogether preferable where it can be used.

It sometimes happens that teeth treated in the manner I have described, become highly inflamed and require treatment, but this is rarely the case, and whenever it does occur, they readily yield to the remedies I have prescribed in my former article on this subject.

I have placed this order of teeth first in my subdivision, because they are next in importance to those of Class I, the subject of my former article, and because success follows next in order, indeed it is rare that death of the pulp supervenes. When it does not the teeth thus treated give the same indications of vitality with those which have never been the subject of accident or disease. For a season they are often sensitive to warm and cold applications, but this soon wears away, except in some few instances, when months, or perhaps years afterwards, inflammation and suppuration supervene, in which case, the tooth may be retained by removing the nerve and filling the dental canal with gold.

In several cases, years afterwards, for the purpose of preparing for full sets of teeth on plate, I have removed teeth which I had successfully treated in the manner described, and have invariably found their nerves living and fully protected by a considerable deposit of secondary dentine immediately beneath the cap. I do not doubt but that all of the cases successfully treated, are alike favored in this respect.

* Journal of Dental Science, Oct. 1851. Fourth edition of Principles and Practice of Dental Surgery, &c.

From whatever cause this process of ossification is induced, it is desirable that it should be arrested when it has accomplished the end for which it was brought into action; this, however, is not always the case, we sometimes meet with cases wherein the nerve itself is partially ossified. While in London a few weeks ago, Mr. John Tomes, Surgeon Dentist to Middlesex Hospital, showed me among other curiosities in his extensive dental museum, the superior molar tooth of a middle aged person whose tri-branched nerve was completely ossified, from the pulp cavity to its extremities. The tooth was not carious. It had been cracked open and the ossified pulp and nerve branches were exposed in relief, much resembling the living organ, with the difference, that it was semi-transparent and watery in appearance. The ossification, in this instance, had probably been induced by some violent concussion or jar upon the tooth, inducing a degree of inflammation of the nerve, which did not spend itself until the entire organ was involved and destroyed.

We now come to the consideration of inflamed nerves which are exposed, but where inflammation has not so far proceeded as to produce disorganizing results; premising, also, that they have been recently exposed. If the inflamed nerve proves to be considerably congested, and is so situated that it can be distinctly seen, and readily approached with an instrument, guided by a careful hand, I have often found it advantageous, if it has not already been done, to carefully rupture its membrane, so as to induce bleeding. This cannot always be done, owing to its situation or the extreme sensitiveness of the patient, but when the engorged vessels are relieved by this depletion, I have found the nerve much more yielding to subsequent treatment. Tannin, spts. of camphor, and tannate of lead, for applications within the tooth, will be found of great value, while lancing about the neck of the tooth, together with the use of cathartics for the general system, will usually unite in soon reducing the inflamed organ to a condition of comparative health, when it may be capped and filled by the method already described.

In the event of these remedies being insufficient, the use of counter-irritants in the manner prescribed on page 435, vol. 2, of the Journal, (new series,) will generally produce the end desired. Should all efforts to subdue excessive inflammation fail, the only course left, is to remove the filling, destroy and extract the nerve and fill the canal to its extremity.

Teeth successfully treated as above, put on the same healthful appearance that distinguished them before they were diseased. Sometimes a

relapse transpires, when the removal of the plug and nerve is indispensable to the retention of the tooth. I have occasionally removed some of these successfully treated cases, and have found the same deposit of new bone, as in the other cases cited. It is proper to add before dismissing this subject, that the teeth spoken of, under this last subdivision, more frequently fail under treatment than those under the first.

Since the discovery of "risodontropy," I have performed that operation upon eleven teeth; two of them, upon the class of teeth last mentioned, and—upon this latter class—*after* I had filled them in the usual manner; and all of the cases with entire success. The last two cases, were those wherein inflammation had supervened after they had been filled.

I have not had sufficient experience in the operation of "risodontropy," to pass an unqualified verdict upon it; but I am inclined to think, that by its aid *all* exposed nerves, not already disorganized, may be restored to health, and the tooth to all of its vitality and usefulness. The new operation promises to be one of the most important discoveries ever made in operative dentistry. Should these expectations be realized, the discoverer or discoverers, will abundantly merit the unceasing gratitude of the profession, as well as all of those who are its subjects. It is another wonderful exemplification of the ability which nature possesses to adapt herself to great exigencies.

Without presuming to put in *another claim* for priority of discovery, I trust I may be pardoned if I describe the manner in which I once accidentally, as well as successfully performed the operation which others have since developed and established.

About three years ago, Mr. C., a gentleman residing in this place, came to me to relieve him from excessive pain in his front teeth. On examination, I found the left superior frontal incisor, and also its neighbor, the lateral, the subjects of great inflammation. The teeth were loose, and the gums and membranes about them much swollen; both of them had been filled on their approximal surfaces. The nerve of the frontal had been dead for several years, and occasionally suppurated, formed an abscess at its extremity and discharged. It was my opinion at the time, that the nerve of the lateral incisor had recently been destroyed by the inflammation which then had the mastery over it, and that suppuration had already taken place.

Ever since I became acquainted with Dr. J. C. Flagg's operation of *tapping* teeth, whose nerves were dead, I had adopted it in treating

teeth suffering from great inflammation of the periosteum from the death of the nerve, and threatened with abscess. I proceeded to treat these teeth in the same manner.

With a small drill I elevated the highest point of the festoon of the gum over the crown of the frontal tooth, and drilled into its nerve cavity; a flow of pus followed the instrument on its removal. I then proceeded to treat the lateral in the same manner; on reaching its nerve, the patient felt a sharp thrill of pain, and on withdrawing the instrument, several drops of red blood followed instead of pus. The operation upon each of the teeth afforded immediate relief from pain. Fearing the destruction of the nerve of the lateral would result as a consequence of its being punctured by the drill, I directed the patient to call again the next day, which he did and to my great satisfaction, I found inflammatory symptoms had almost entirely subsided, and learned from my patient that he had experienced no return of pain. Several weeks after, Mr. C. called at my office, and informed me that on that day, as a matter of curiosity, he had elevated the gum and introduced a bristle into the drill hole I had made, until it reached the nerve; that touching the nerve only gave him slight pain, and did not cause a flow of blood. I repeated the experiment with the same results. The tooth was entirely healthy and had not been painful since the first operation. About a year ago I again examined the lateral tooth, when I found the bottom of the drill hole entirely closed up; the tooth was still healthy. I never repeated the operation upon living teeth until recently, though I had often thought of reporting the above case as a novelty.

CLASS III will form the subject of an article in the next Journal.

TO BE CONTINUED.

Errata.—Unfortunately many typographical errors crept into my article in the April number.

On page 425, 6th line from the bottom, after the word *diseased*, read *bone and*.

On page 427, 11th line from bottom, strike out the quotation marks before the word *Although*.

Page 428, 10th line from bottom, for *even*, read *ever*.

Page 430, 20th line from top, for *ridiculous*, read *solicitous*.

Page 431, 11th line from top, for *any*, read *by*.

Page 435, 17th line from top, let the sentence end with the word *effect*, and place a comma after the word *cuticle*. 10th line from bottom, for *they are*, read *it is*.

Page 436, 3d line from top, before the word *tooth*, insert *safety of the*.

Page 437, 6th line from the top, after the word *crepitus*, insert *sound*.

The errors of punctuation are too "numerous to mention."—*Am. Journal*.

(In republishing the first part of Dr. Dwinelle's article, from the Journal, we discovered and corrected several of the most glaring typo-

graphical errors, for which we received the thanks of the writer. The errors which occurred in the above article have been corrected by Dr. Dwinelle for the Recorder.—*Ed. Recorder.*

DENTAL PATENTS.

BY A. HILL, D. D. S., NORWALK, CT.

[The following article from our associate was forwarded to us in manuscript, by mail, but from some cause was never received. We delayed the April number, from day to day, expecting it, which, with our own continued ill health, has occasioned great delay in the issue of the present and several preceding numbers.—*N. Y. Editor.*]

Of late there has been considerable discussion upon the subject of dental patents, and quite a diversity of opinions expressed with reference thereto. Some of our brethren whose zeal seems to have got the mastery over their judgments, have come down upon the subject in a manner by no means calculated to win our suffrages, or impress our understanding with a conviction of the correctness of their reasoning.

Grandiloquent declamation—or wholesale denunciation of those who are opposed to us, will not always pass for logic.

Neither will all the changes that may be rung on the various epithets in common use, among a certain class of writers, be substituted by thinking men, for legitimate deduction.

It shall be our business to clear away the rubbish and extraneous matter by which the subject is surrounded, as far as may be, and offer a few considerations which to our own mind seems to be of importance touching the matter in question.

It is confessed on all hands, that a dentist or physician has a *legal* right to secure letters patent for any article, or invention, that his ingenuity or labor may devise; this, then, is not a bone of contention. We think that the *moral* right to a patent must also be conceded, where no moral principle is sacrificed in its exercise. For a patent in itself can no more be considered an immorality, than any other species of property that is held by a just and lawful title. As well might we say that *wealth* is an immorality—or talents an immorality, as to say that a *patent right* is nevertheless a patent *wrong*, and that of necessity.

Property, honestly secured, is a *right*—a *legal* right, a *moral* right,

and may be a great blessing, when properly used. This, too, we think is not the question in dispute.

But the *professional* right, aye, here is the rub, we are such sticklers for conventionalities—for time honored customs—and even for hoary errors, that we can scarcely allow this matter to be called in question, without becoming venomous as serpents. But let us have patience—may be we shall get at the truth after all.

Let us look this thing full in the face, and see what we can make of it. We address ourselves, then, to the disputed point, which comes to this; we may not do professionally, what we may do legally, and of moral right.

There is not, necessarily, anything dishonest in a patent, it is only "*dishonorable*," and it only becomes dishonorable, by being a breach of conventionality. And it is only a breach of conventionality, when it violates constitutional laws, or usages. We are speaking now as to the necessity of the case.

We grant that a thing—an act, or a patent *may* be, not only dishonest, but absolutely dishonest, where it deprives another member of the same profession of his just rights, and the community of those advantages, which would accrue to them, if no such thing existed. But no such *necessity* attaches itself to the subject under consideration. We therefore cast it aside, as irrelevant.

The subject becomes exceedingly simple, when divested of its surplus drapery and vague generalities. But it is not often discussed in this way, or even in a spirit favorable to the development of truth.

When an individual is admitted to fellowship in any society, having a constitution or by-laws, or both, it is expected of him, that he will conform both to their letter and spirit. If one of those articles forbid the procurement of a patent, and he becomes a patentee, it is clear, that he has violated the principles of fellowship in such society. His offence is a conventional one, and under certain circumstances might be characterized as an immorality. But if there be no article in the constitution, or by-laws, or any vote or resolution, passed by the society, which prohibits the right of any member to secure letters patent, has he then violated the terms of the compact? We think not.

We will go farther and say, that if it can be shown, that immemorial custom, or usage in the society of which he is a member has reprobated the principle of patents, he has committed an offence, for which due atonement should be made. Can this be said of our profession, or any

society of practitioners, connected with it? If so, we stand convicted, if not, we are clear.

With respect to the medical profession proper, we are aware of a strong feeling against the principle of patents, in the profession, and we have been taught to regard it, as dishonorable for a medical practitioner to become a patentee, in things pertaining to practice. Although the catalogue of M. D's. guilty of this offence is really formidable.

But what is the process of reasoning by which we reach the conclusion, that it is dishonorable in a medical or dental practitioner to procure letters patent? If it be the mode suggested above, then let us put it on that ground, and that alone. Call it simply, a conventional sin, and deal with the offender accordingly. If it be dishonorable in the sense of an immorality, then reprobate it as such. If it be dishonorable in the sense of *quackery*, prove it to the world, and brand the offender as a "quack." But what is this thing you term "quackery?" If we mistake not, it is a term susceptible of various meaning, and very comprehensive significance. And it is, moreover, in the mouths of many persons a most convenient epithet. It is to some what the cry of "*stop thief!*" is to the rogue. It is to others an easy vehicle of calumny and abuse. But heaven save the mark—where it is justly and strictly applied, to the extent which is merited. We can only say, "let him who is without sin cast the first stone." We have consulted Noah Webster upon the subject, but we will not trouble the reader with quotations.

It will answer our purpose to remark, that patentees are not the only "quacks" in this wide world of ours, and that those who are conscious of this guilt, are generally most fond of bestowing the epithet on others. Like some quarrelsome darkies we have seen before this, who, when they became angry at each other, and wish to heap in one word, the utmost contempt, and scorn, call each other "*niggers.*"

But to the subject.

Let the reader bear in mind, that it is not our present business to vindicate the *conduct* of patentees, nor to show that they never abuse their privileges. Neither are we contending for the propriety of patents, in all cases; but for the *right*. Legal, moral and professional

It will not do to say, that patentees are the most "*avaricious*" of mortals; that they are ready "to thrust their lucre-loving hands into the pockets" of honest people. This is not true. Would to heaven it were true, that they, and they *only* were guilty of the sin of avarice or cove-

tousness. Condemn this thing as heartily, and as much as you please, but do not make it exclusively the sin of patentees.

If you say the profession is too "holy," too noble, too exalted a calling, to make it the means or source of gain, do you not necessarily condemn those who have amassed the most splendid fortunes, in simply professional pursuits? Do you not disown the legitimate demand for a fee in any case? And especially such exorbitant fees, as some of the most eminent practitioners require?

Why not put the support of the physician and dentist on the same footing with that of the clergy, viz. the voluntary contributions of the people? and thus make their services free, to the poor and abject portion of the community.

Men's genius, and talents are various, and run in different channels, on what principle is the labor and genius of one man to be appropriated to the use of the public without reward, and the other extravagantly paid for his services. How is it that the man who toils in his laboratory, and taxes his energies by night and by day, for years together, and expends all his time and money to invent and perfect some useful compound or machinery, is required to yield his rights to the noisy requisitions of the public, or profession to which he belongs; whilst another man becomes eminently skillful in the use of these very compounds, or instruments, is allowed to acquire an immense fortune by placing very high terms, as the only condition upon which his skill becomes available.

For illustration, let us suppose a case.

Dr. Banning turns his attention, and devotes his time to the perfection of a "body-brace," or abdominal supporter, and in order to indemnify himself for his time, and labor, and expense, he takes out letters patent, and sells his instruments at a price that he deems a fair compensation. Now Dr. Nameless would not be guilty of such a thing, as taking out a patent, but he is eminently skillful in surgery, and must be paid for the exercise of that skill, therefore he expects a fee, which excludes by far the largest portion of the community from the benefit of his services, and according to this system of ethics, Dr. Nameless is an *honorable, high minded and chivalrous fellow*, while Dr. Banning is a mean contemptible quack that ought to receive no fellowship from an honorable profession.

Is that it?

Again, here is Dr. J. Allen, who has toiled most laboriously in his

laboratory—has expended hundreds of dollars, and years of time, to complete his great improvement in mechanical dentistry, and has secured his interest by a patent. Now what shall be done with him? (Bear in mind, we are not now to inquire into the validity of his patent, or the priority of invention, but presuming every thing right and fair on this score.) What say these chivalrous, whole-soul practitioners of dentistry? How shall he be indemnified? O says Keyes, "the day has arrived, when those who love their profession, and would lend their aid to elevate and improve it, should eschew the patent, as they would dishonesty, should hold themselves aloof from every species of quackery trusting wholly to moral and professional merit for success." He must not get a patent, because he thereby "violates the ethics" of his profession and "because he owes to the profession the best energies of his mind, and the benefit of his experience."

But we ask again, how shall he be indemnified? Can a man live on wind, or glory, which is much the same. Does he owe nothing to his family? May he not provide for his own and especially those of his own household?"

And what is this thing you call "moral ethics?" And by what code of "moral ethics" do you propose to appropriate this man's labors to your own, and the public use, without indemnity? If any member of our profession, by virtue of superior skill, and an eminent position in society, can command, and do receive from *ten* to *thirty* dollars for filling a single tooth, by what code of morals shall he be allowed to receive what some would deem enormous fees, while this very circumstance must necessarily deprive the masses of the community of the benefit of his services, while the other man toils on, purely for the public good?

But this does not "detract from the dignity and respectability of the family to which he is attached, the circle in which he moves, or the community in which he lives." It rather increases the "respectability" of the concern. But how does it comport with the character of him who "goes forth full of charity and love, with the exalted hope—the high resolve, to do what he can to alleviate the sufferings of his fellow-men?" How comport with him, who is "clearly above the base and sordid things of earth?" and so extendedly engaged in the exercise of charity which so elevates and adorns our natures?"

The great error here, most obviously lies in assuming, that the man who secures a patent, is *necessarily*, supremely selfish and *grasping*. This, however, remains to be proved.

Would it not be pertinent to the subject to enquire, how many who are now engaged in the practice of our profession, would continue in it, if the simple idea of *gain*—of *money-making*, were at once and forever dissevered from it? How many of the few who command extraordinary prices would continue in the profession, if the more moderate compensation of the many, should become the inevitable standard?

But suppose the talents of some member of the profession should lead him into a series of experiments involving time, labor and expense, and eventuates in the discovery of a process by which his professional brethren can be greatly advantaged, and immense good to mankind result from it: meantime, in perfecting and bringing his discovery before the world, his means are all exhausted—his family destitute, and he greatly embarrassed with debt, and that debt incurred in prosecuting his experiments. But with the devotion peculiar to this class of persons he continues, and by “hook or by crook” he completes the invention. The thing is done, but he is bankrupt. What is his duty under the circumstances?

“O,” says Keyes, “he who resorts to such a course! (i. e. to procure a patent) to secure notoriety and gain, merits the opprobrium^o and obloquy of his brethren, and should have the hand of fellowship withheld, and treated as an outlaw.” This would be “befouling yourself with things unclean, or habits unholy.” This would be “thrusting his polluted lucre-loving hands into the pockets of the poor, the honest, the ignorant, the sick and the dying.”

But what shall he do? He must elevate himself above all these “sordid” considerations, and upon the “noble altar of the public good,” consent to sacrifice the happiness of his innocent family. Ours is a “liberal profession,” and we must show our liberality by giving our time, talents and services to those best able to pay for them, i. e. the profession. For “the day has arrived, when those who love their profession and would lend their aid to elevate and improve it, should eschew the patent, as they would dishonesty; should hold themselves aloof from every species of quackery, trusting wholly to moral and professional merit for success.”

It does not comport with the lofty character of the members of our profession, to be inquiring “what they shall eat,” &c., such things are decidedly vulgar. You must give it to the profession, or “be treated as an outlaw.”

But replies the unfortunate inventor—my time, money and labor be-

long to my family, at least in part, and duty requires of me to look after their interest.

"But you will lose all the glory of a noble act."

Glory will not buy bread. Glory will not cancel my obligations. Glory will not educate my children—and, beside, if you are such a stickler for *glory, dignity* and *usefulness*, are you not willing to share it with me? Why not then come forward, as a profession, each one contributing according to his ability, to enable me without loss or detriment to give it to the world? This would, indeed, be something worth talking about. This would be *chivalrous, glorious, liberal*.

It is in this view of the matter, that we discover that this vaunted system of ethics is completely crazy. And that instead of philanthropy and benevolence, and noble generosity, selfishness itself, like a serpent, lies concealed in all this high-sounding verbiage. For, in effect, it demands our time, labor and money, without compensation. It virtually says, if you will give it up, well and good; if not, we will oppose you at every step; we will blacken your professional character and reputation at every opportunity; we will brand you as a quack, and treat you as an "outlaw." We will invalidate your claim, if possible, oppose the sale of your *rights*, and by a system of piracy and a perpetual guerilla warfare, we will ruin you.

And so unscrupulous is this opposition, and to such an extent has it been carried, that we frankly confess that dental patents in these days are of little worth. But whether valuable or not, the morality of such conduct, on the part of many who oppose them, is, to our mind, exceedingly questionable.

The man who writes a book, or treatise, can secure himself by means of a *copy-right*. This is *honorable*, even praiseworthy. But this man, instead of writing a book, has worked on a process, or invented an instrument, and where is his protection? Nowhere, except in a patent, and that is disreputable. Here are moral ethics with a vengeance! But, it is contended, that *copy-right* is widely different from a *patent-right*, and by no means analogous. Let not the candid reader be misled by mere verbiage. He will be surprised at the similarity, the identity of principle, if he will attempt the analogy.

Here, then, is our position, and here will we entrench ourselves. This *pet-lamb* of our profession must die with the *goat*.

This favorite child has no more legitimacy than this much abused and kicked-about bantling. Gentlemen may nettle, but we have the hook

where it is secure and our fish must come to land. We are by no means ignorant of the method of argumentation upon this subject. But still, we confidently count upon our game. For a blow at the one, is a blow at the other.

These Siamese twins cannot be separated without risk. They were born of the same parentage—nursed by the same hand, and the throbbing heart of the one, sends its pulsations through the arteries of the other.

And here it is that we complain of injustice, of inequality. Here, we enter our solemn protest against hoary usage, and obnoxious favoritism. Here, we learn to appreciate the grandiloquent declamation, and elegant emptiness, of much of this “sound and fury,” which either destroys *copy*-rights, or “signifies nothing,” when directed against *patent*-rights.

Let us see how they look side by side where they properly belong. The one is an *exclusive* right, so is the other. The one is a *monopoly*, so is the other. The one costs time and labor, so does the other. The one may be valuable or otherwise, so may the other. There is no secret about either. Every plea for one, is an argument for the other, and so on *ad libitum*.

Thomas B. Macauley, in one of his speeches before the British Parliament, holds the following language in reference to this matter: “Copy-right is monopoly, and produces all the effects which the general voice of mankind attributes to monopoly.” * * * “It is good that authors should be remunerated, and the least exceptionable way of remunerating them is by a monopoly.” * * * “The principle of copy-right is this: “It is a tax on readers, for the purpose of giving a bounty to writers.”

But, replies Prof. Handy, “what each one can add to the common stock, it is considered not only that he receives out of that common stock in return, a full equivalent, but further, a measure fully heaped up and running over; and that mind, it is believed, must be possessed of no small share of vanity, to think that all other minds have contributed nothing to the common stock, and that from this universal poverty of mental contribution, this alone luminary, receiving nothing in return, modestly comes out and claims a patent (copy-right) for extra contributions of services rendered.”

Now we humbly submit, that the foregoing aims a vital blow, against *copy*, as well as *patent*-rights. Has the man who writes a book the

vanity to suppose that he can add anything to the common stock ? And what has he, that he did not receive ? An editor, (an able one too,) in discussing in his paper the copy-right question, asks the following : "Can we be wrong in regarding the naked issue of honesty against knavery, as forming the base of the copy-right question ?"

And if the principle involved is the same as the patent principle, can we be wrong in regarding the naked issue of honesty against knavery as forming the base of the patent-right question ? There is perhaps this difference between the two. While the rights of *inventors* are limited to a few years, the rights of *authors* have no such limitation.

It may be said, that many of the patents which are procured in these days cover the most worthless pretensions ; or, in other words, the patent article has no value, no real worth, and amounts to nothing. This is doubtless very true, but what then ? If the patent covers no valuable improvement, it can certainly work no injury to the profession ; for it is no loss to be without it ; and the patentee is the worse for his labor and expense. But is not all this true of the copy-right ? How many worthless volumes fall dead from the press ? How many come into the world still-born, and never pay the expense of publication ?

In the July number of the American Journal of Dental Science, for 1852, Prof. Handy bases an argument against patents in medicine on the ground of a " general feeling," both professional and non-professional against them. He says, "there is no legal difficulty in the way ; but only the general feeling, both professional and unprofessional which was (wars ?) against it, and it is just this feeling which seems to form the reason why the opinion is so prevalent that patents in all such cases are wrong. Now, if such feeling as this were only occasional, and occurred but in few cases, it might be thought of but little value, and seem scarcely worthy of notice ; but when, on the contrary, such feeling becomes universal ; when it is found in the savage, as well as civilized man ; in the ignorant, as well as the informed, the inference seems fairly to force itself that such feeling is fundamental to our nature, of binding authority, and enforcing a moral obligation, which every one feels as instinctive to his being." "Now, if this be true, (he says,) the common opinion of mankind is against all patenting whatever in medicine." &c.

"*If this be true;*" but we ask most respectfully, is this true ? If the fact be, as stated by Prof. Handy, we admit the force of his conclusions ; otherwise the argument fails. We judge that the feeling is neither so *general* nor *instructive* as to give much more force to the opini-

ons of a "savage" on the subject. And, so far as we are informed upon the matter our inference is quite different from the one drawn by Prof. Handy. And it would seem that the very generous use and sale of patent medicines and secret compounds in the most enlightened and refined communities, was proof incontestibly of a *general* feeling in their favor. At all events, it must weaken the force of the argument drawn from the assumed fact, that the general voice of mankind is instinctively against patents in medicine.

The following proposition we do not choose to dispute, viz. "That he who would obtain an exclusive privilege by patents to save men's lives, and that only such as would choose to pay for, and obtain the healing virtues of such patent, must be doomed to die, would at once be pronounced a very monster of avarice and cruelty; a being in human shape, but thoroughly destitute of all the feelings of a common humanity, as well as of common decency."

But is it just—is it ingenuous, to draw a sweeping conclusion against *all* patents, even in medicine, from a supposable case like the above? Do we not generally reason from false premises, on this subject, and are not such deductions illogical?

Granted—that "the healing of the sick, is of such a high and holy character, and involves such weighty responsibilities as not, for a moment, to be put in contrast with, or placed by the side of, simply dollars and cents." * * * * *

Granted—that "the art of healing has more than once been styled a divine art—one not to be acted out, and measured by pecuniary profit—but one to be free as the air we breathe," &c.

What then? If this proves any thing, does it not prove that it is absolutely degrading to set a *price*, a *fee*, upon medical services? Does it not prove that the services of a physician ought to be placed upon the same ground as those of the clergy? Is it right for a man to dole out or dose out his skill in saving either human souls, or human bodies, at *one* or *five* dollars per dose? Why should dollars and cents stand in the way of human life, or human salvation? And yet it is manifestly true that they do.

One of the two things must be true—if the above proposition is valid, either the whole system of medical compensation is wrong and should be condemned; or else the right to a patent in medicine or surgery is justifiable. This broad sword has two edges, and the one is as sharp and terrible as the other.

" Does the price of a patent, or the right to use it, stand in the way of human life? so do the price and advantages of superior medical skill, and the exorbitant fees of some of our most eminent physicians and surgeons, give them a monopoly a thousand times more fearful and detrimental to human life and comfort than any medical or dental patents ever can do. We insist upon it, that this subject has been discussed in a one-sided and partial manner; and that the arguments adduced against patents, either prove too much, or they are unjustly restricted in their consequences.

We are willing to admit great abuses in the patent system, but let us wisely discriminate in matters of principle.

But—"The medical profession is regarded as a common profession—as one great brotherhood for the common good, consequently having one common interest. And thus, by the common contract necessarily having a common share to the accumulative property belonging to the common stock."

Is not this rather specious than otherwise? Its poetry is certainly fine, but for sober prose it is *quite* specious.

Surely Prof. Handy cannot mean to convey the impression, that by virtue of his, or other connection with the profession of medicine, that therefore he is entitled to share in the wealth of his more fortunate brethren. No! he only means to convey the impression that we are entitled to *know* as much as any of the brotherhood, if our small craniums can stow it all away.

The argument that no one can possibly add to the common stock of human knowledge any more than he has received, only seems to render the subject more difficult, and complex, as it is here applied.

For this also if it proves anything, can be successfully turned against the position of those who oppose the views for which we contend. For where is there a human being upon the face of the earth, be the sum of his knowledge much or little, that is not indebted to society for all that he knows, and for all that he has?

This argument is transcendental—it destroys *all* property distinctions, of whatsoever kind. It is clearly a plea, for not merely a community of interest, but a community of rights. And if pushed to its consequences *Fourierism* itself could demand nothing more.

We see that the argument is defective simply because 1st, the facts are *assumed* without proof, and 2nd, because the premises being defective, the deductions are necessarily so. The argument also which

Prof. Handy draws from the relation of *splints*, *trusses*, &c., to human life and health, we think is equally defective. Because, 1st, if carried to its consequences, it would inevitably overthrow the whole patent system altogether. 2nd, it is based upon the assumption that a patent right necessarily stands in the way of human life, and health, which remains to be proved.

There are a thousand various objects concerning the right to patent which, no question has ever been raised that sustains a relationship to human life and health, as intimate and special, as the relation of splints to broken limbs, trusses to the cure of hernia, &c. For instance—

Food is essential to life, &c. Now that which effects the price of food, is related to human life. A patent *plough*—*harvester*—a *mill* for grinding grain—conveyances to market, &c., may all be connected with human life in the matter of food. Will none of these things admit of a patent?

Again. Clothing is essential to human life and comfort, and cheap clothing is connected in a variety of ways, with patent machinery, &c. Where shall the argument end?

But our article is of sufficient length, and should be concluded. We have intended to preserve a respectful bearing toward our brethren whose views may differ from our own, and we should regret to know that any just cause of offence should be found in anything we have written upon the subject.

For the respectful manner in which Prof. Handy has treated the subject, he has our high regard.

He has very justly remarked that the subject is one of very great interest. "That it is a subject admitted to be of some difficulty, about which honest minds may differ." We do not set ourselves for the defence of all its abuses, but merely inquire as to its *right* and *propriety* in certain cases, and unless we have entirely misapprehended the whole matter, we think we have a right to complain of the offensive personalities—the invidious comparisons, and abusive epithets, in which *some* who have written upon this subject, have so freely indulged.

We are not yet quite willing to be treated as an "*outlaw*," or branded as a *quack*. We may yet see cause to change our views upon the subject of patents, but such kind of treatment will not hasten our conversion, or conciliate our feelings.

May we not therefore invoke a nobler, and more generous spirit, in the discussion of this subject.

EFFICACY OF AMALGAM FILLINGS.

A few years since, during a controversy with Dr. E. Parmly upon the merits of amalgam for filling teeth, we wrote : That if our life, fortune, or happiness, depended upon the preservation merely of a tooth, we would sooner fill it with amalgam than with gold. Subsequent experience has so confirmed this opinion, that we have recently had several of our own teeth filled with amalgam, by a skillful operator, which were in a good condition to have been filled with gold. Our experience with it in our own teeth has been such as to induce us to prefer it to gold in all cavities in the back part of the mouth. The first filling of this kind which we had put into a tooth was inserted by M. A. Johnson, about nine years since, in a lower molar decayed upon the masticating surface, the caries extending nearly to the pulp. That tooth was shown to several members of the American Society, at different times during the uncivil war which raged so fiercely for several years in that society, and, although it has never been refilled or touched since the final burnishing, is at this day as perfect as when it was first inserted, though it has been constantly in use since. This tooth might have been well filled with gold, and if it had been, would probably have been as good at this day as it now is; but it could not have been better. Why then should we be subjected to the expense of a large gold plug, and to an hour's hard punching and fatigue to condense it in the tooth, when a safe, cheap and durable filling could be and was, inserted in less than five minutes, without either fatigue or pain ?

Since that time we have been growing in favor of amalgam for filling all teeth in the back part of the mouth, have recommended it and used it more and more in our practice with decidedly good results in all cases, until we have come to prefer it in our own mouth in all cases, where it is not exposed to view, as we consider it safer than gold in all large cavities. We have now in our own mouth more than a dozen amalgam fillings, and several tin and gold ones, which we intend soon to have refilled with amalgam. One of our wisdom teeth has now been filled with amalgam five years, though the crown was almost entirely gone at the time the operation was performed. The tooth has been in constant use (being on the side of the mouth which has done most of the masticating) ever since, and is now in as good condition as it was, on the day after the operation. We have shown this tooth to a hundred dentists since it was filled, both amalgam and anti-amalgam

men, and not one ever pretended that it could have been filled with gold—not even Prof. Westcott, who some years since declared that any tooth worth preserving could be filled with gold.

Now, these are facts which we can and will substantiate to any impartial person who will take the trouble to look into our mouth and see for himself. Further, the use of amalgam has been constantly on the increase, if we can judge from the report of all the dentists we meet with, and from the sale of materials, and the cry of "salivation" and "mercurial effects," has entirely died away and become obsolete. Even the homeopathic physicians sanction its use in "certain cases," rather than sacrifice the teeth to caries. Such being the facts what are we to think of the intelligence, honesty, and benevolence of those dentists who turn patients from their doors, because they cannot afford to pay from five to thirty dollars, (and not too high either) for enormously large, beautiful, and highly finished gold fillings? Those who prefer to submit to the operation and pay the fee, we admit, enjoy a more beautiful prospect whenever they look into their own mouths, but for ourselves, we prefer to preserve our teeth with amalgam, escape the torment of the plunger, and deposit our gold in some more secure place than large cavities in molar teeth. "Experience is the best schoolmaster."

COMMENCEMENT OF THE BALTIMORE COLLEGE.

The following young men constituted the graduating class at the Baltimore College of Dental Surgery, on Friday, March 25th, 1853,—

The names of graduates and subjects of their theses:—

F. Arrington, Constitutional treatment of odontalgia. A. B. Arthur, Diseases of the inferior maxilla from diseased teeth. A. J. Brown, Physical marks of the teeth. S. T. Church, Formation of the teeth. S. J. Cockerille, Anatomy—its progress. C. R. Coffin, Artificial teeth. G. L. Cooke, Neuralgia of the face. M. D. French, Necrosis of the superior maxilla. F. M. Green, Carious teeth. D. P. Gregg, Structure of the salivary glands. G. P. Kingsley, Artificial teeth. F. F. E. Kirchner, Mechanical dentistry. S. A. McDowell, First dentition, morbid effects. T. C. Boyce, Pure tin as a base for teeth. B. F. Reilly, First dentition. A. J. Sedwick, Signs for successfully plugging teeth. D. I. Shelton, Filling teeth. W. C. Stewart, Caries of the teeth. M. S. Taylor, Progress of dental surgery. R. H. Tucker, Filling teeth. D. Tracy, Diseases of the dental pulp. H. N. Wodsworth, Absorption of saliva in filling teeth.

After the ceremony of conferring the degrees, a poem was read by Dr. W. H. Dwinelle, of Cazenovia, N. Y., which was received with much applause by the audience.

The following operations were performed in the Infirmary during the past session.—

| | |
|---|-----------|
| Teeth filled, | 481 |
| " separated, | 138 |
| " extracted, | 400 |
| Whole sets cleaned of tartar, | 64 |
| Diseased gums treated, | 60 |
| Teeth filled over exposed nerves, | 19 |
| " to apices of roots and crown cavities, | 9 |
| Pivot teeth inserted, | 7 |
| Artificial teeth mounted on plate, | 880 |
| Operations on diseased maxilla, | 1 |
|
Whole number, |
2,029 |

DENTAL NEWS LETTER.

The April No. of this quarterly comes to hand, teeming with interesting matter. It is embellished with a capital lithographic likeness of Dr. J. D. White, Prof. of Anatomy and Physiology in the Philadelphia College of Dental Surgery. The likeness is so excellent, that on first beholding it, we could scarcely refrain from exclaiming, "*How are you, Dr. White?*"

One of the most novel things contained in this number, is the communication of a correspondent relative to the manner of "putting up *lips* and *noses*." The writer says that he has been applied to by a gentleman, for a job of work." * * "and would like to know, what an artificial *nose* and *lip* would cost." "He has never seen anything of the kind put up, and is at a loss how to do it."

We hope he is a Yankee, for in that case he will surely find out a method of doing up the job.—*Norwalk Editor.*

REMOVALS.—The late appearance of the present No. is unavoidable, on account of the illness of the New York editor, and the failure to receive the article on Dental Patents from Norwalk. The next No. will be put to press as soon as possible. It will be seen that several of our advertisers have removed their place of business in accordance with the general practice in N. Y., of "moving" on the first of May.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. VII.

MAY, 1853.

No. VIII.

A HISTORICAL SKETCH OF AMERICAN DENTAL PATENTS; WITH REMARKS.

BY GEO. W KENDALL.

[The following "History of Dental Patents," granted by the United States, was published some time since in the American Jour. of Dental Science. We did not republish it at the time, because it contained some severe strictures upon persons then connected with or writing for the Recorder; but as the controversies which were then waging in our pages are (for a time at least,) now suspended, and believing that a description of the patents which have been issued for fancied, or real, inventions or improvements in the dental art, will be of lasting interest to our readers, we have concluded to transfer Dr. Kendall's article to our pages, leaving out, however, all personal matter which is not necessarily connected with the inventions and improvements. Here is a record of forty-two patents granted to different individuals for what should have been real improvements or original inventions, affording new facilities to dentists in their practice and based upon the supposition that superior intellect or genius had, by uncommon or long continued labor and effort, produced something worthy of protection, and from which the inventor deserved to receive a portion of the profits. We ask our readers to carefully look over the record, and say what proportion of these patents are worth the parchment on which they are printed. To our mind this "History" is one of the strongest arguments that could be penned against the expediency of procuring letters patent for what at first may appear to the originator as a wonderful invention. How many of the following inventions are now considered of any value, or used in practice at the present day? How many were *original* at the time the letters patent were granted? How many would stand the test of litigation? What have been the average profits received by the patentee for his invention, or how much has the most successful vendor of a dental

patent made by the operation, after deducting the expenses incurred, not it perfecting the invention, but afterwards, for hawking it about? In short, how much more "liberal" would the profession have been if no such thing as a dental patent had ever been heard of? These questions are worthy of serious reflection, and we hope will be thoughtfully considered by all practicing dentists.—*Editor Recorder.*]

"'Tis a great fault in a chronologer
To turn parasite: an absolute historian
Should be in fear of none, neither should he
Write any thing more than truth for friendship,
Or else for hate."

Although many facts relative to the past history of the dental profession in the United States, have been recorded, one part of that history has been entirely neglected, and I have endeavored herein, by the collation of a mass of facts relating to patents granted for improvements in dentistry, to fill up this vacuum in our literature.

Until within the last fifteen years, most of the practitioners of dentistry claimed only for it a position among the mechanical arts, and rested contented in the reputation of being *good mechanics*, and a proof of this was found in being a patentee.

The dark clouds which had so long obscured the dawn of dental science, have been partially dissipated by the rays of a more benignant planet, and now gives a foreshadowing of a glorious and brilliant future. A determination has been exhibited by many of our best and scientific dentists, to elevate the standard of professional excellence, and to substantiate dentistry to be ranked as an important branch of the highest and holiest of sciences: the science of medicine.

Much has been done, and medical men generally recognize dentistry as a liberal profession. To show that this is well grounded, I will quote a few lines from "The American Journal of the Medical Sciences," April, 1851, which is as high medical authority as any in the world.

"American dentistry is doing every thing which the severest criticism can require, to establish its claims to the rank of a distinct speciality of medicine. The number and value of its periodicals: the rapid succession of new standard works; and the regular and steady increase of its collegiate foundations, challenge for our brethren in this department of the healing art, the highest admiration and praise."

To merit this, should be the aim of the dental profession, and to do it, we must cut off all compromise with quackery in any of its protean forms.

Medical ethics condemn nothing more surely, than patenting any thing connected with the practice of medicine, and this example has been followed by the American Society of Dental Surgeons. At the meeting held in 1847, "C. C. Allen offered the following preamble and resolution:

"Whereas, one of the objects of this society is to diffuse a knowledge of correct practice in surgical and mechanical dentistry among all practicing dentists, and to give all its members the benefits of all improvements in the science, thereby elevating it to the rank of a liberal profession: therefore,

"Resolved, That it is derogatory to the dignity of this society, to retain, as a member, any person who has secured, or shall hereafter secure to himself, by letters patent, any improvement in surgical or mechanical dentistry.

"Resolved, That no man shall be considered an honorable member of this society, who has secrets in his profession, or refuses to impart any knowledge or information which he may possess, on the subject of surgical and mechanical dentistry or any collateral branches, to any other member."

Which were *unanimously adopted*.

The stand thus taken did much to elevate the profession in the eyes of medical men, but the next meeting, *although* in favor of the spirit of the resolutions, thought them premature, and they were *rescinded*!*

This tampering with one of the worst forms of quackery, has cast a stain upon the American Society, which even the great number of really honorable members, will find difficult to remove.

We claim for dental science the rank of a liberal profession, between which and a *trade*, let us remember that the distinguishing feature is, that pecuniary gain is not its principal object. Liberality is a necessary attendant on great scientific discovery, and so freely has such knowledge been disseminated, that he who now attempts to secure to himself alone the benefits of such discovery, cuts the silver chord which bound him to the *truly* scientific and honorable, and exposes his own cupidity and mendacious pretension. In no other phase, are the attributes of quackery more definitely traced; and here the inordinate selfishness of the quack stands out in bold relief; no high ambition glows in his breast,

* We were told by a member that the above resolutions were rescinded, by the society, to prevent one of the Vice Presidents from resigning his membership, because he desired to hold a patent which he had taken out for an "ether inhaler."—*Ed. Recorder*.

warming the ideal of his future into a hope of mental and moral greatness ; on the altar of mammon, of all claim to professional regard.

The profession of medicine, and even our own, young as it is, shows the history of quackery in the lives of men notorious, and frequently from this charlatanism, who have passed from their field of action, "unwept, unhonored and unsung," leaving a memorial behind, an abhorrent recollection.

In ninety-nine cases in one hundred, patents are secured, not for the profit that will accrue from the sale of the article patented, but for the purpose of creating an impression with the public to be felt in the office practice. It is a popular belief, that the commissioner of patents, with his assistants, is qualified to judge of an improvement in each and every department of knowledge. In the library of the patent office, are a great many books relating to those branches of art, in which patents are usually taken, but not half a dozen on dentistry proper. The applications for patents for articles which the corps can judge, are so numerous, that the examiners are scarcely able to give them a thorough examination, and for every application for an improvement in dentistry, unless the claim is so glaringly false as not to deceive any man, taken at random from the crowd, the patent is granted.

As illustrations of this, I would cite the cases of patents for "vertical extractors," three of which have been granted, and not one of them is of the slightest possible practical application, and yet almost identical in their mode of action. The key was patented five times ! once for nothing at all but a bend in the handle.

Another patent which was heralded as a wonderful improvement, and about which a great deal was said in Philadelphia at the time, by the inventor and his friends, was for making pin heads on the platina rivets of teeth. But to quote all valueless or filched patents, would be to leave few for further notice.

This laxity of examination at the patent office, together with the rigid laws of patents, make it almost impossible for a patentee to recover damages for infringement. Few dentists know any thing whatever of those laws, therefore apply to a patent agent who knows as little about dentistry as the examiner of patents, and the claim and specification is prepared in a *legal* form by him. In consequence, the inventor claims too much, or describes not enough. He may claim a number of improvements, of which some small and unimportant one is not his own, and then all action for infringement is at an end.

Before an inventor shall receive a patent, he shall "deliver a written description of his invention, of the manner of making, compounding, using and constructing the same, in such clear, full and exact terms, as to enable any person, skilled in the art or science in which it pertains, to make, construct, compound or use the same." Government grants him a monopoly of his invention for a term of years, and, in return for this protection, demands that it shall be made public property at the end of the term. That this end may be accomplished, the government requires such a description as will enable one skilled in the particular art, to make the thing invented, by simply following the said description.

I will now proceed to point out a few legal points that present themselves.

The "inventor must first swear that he believes himself to be the first and original inventor." The first point under the United States law, is that of novelty, which relates not merely to previous inventions in this country, but anywhere in the world. No matter how secretly it had been used in this country prior to the application for a patent, proof of such use will be sufficient to invalidate the patent. It is not enough, however, to debar the patent, to show that it had been used in a foreign country unless it had been patented or described in some public work. The courts do not require that the description should fully answer the purpose of specification, but only that it should serve as a direction for making or doing the thing to which the description related.

The consideration upon which a patent is granted, is novelty of every material thing, process or part, of the invention that is represented as a substantial part thereof: this consideration is an entirety, and, consequently, if any part of it fails, the whole patent is invalid. Whatever is covered by the claim of the patentee as his invention, must be taken as a part of the claim; if it turns out that any thing claimed is not new, however small or unimportant such asserted invention may be, the patent is void, and prosecution for infringement cannot be sustained. To show the extent to which this is carried by the courts, the case of *Campion vs. Buryon*, may be cited, in which a patent taken out for "making sail-cloth without starch," was declared void, as the true improvement consisted in a peculiar texture or twisting (described in the specification) by which he was enabled to manufacture cloth without starch, but starch had been excluded before. If a patent contains more than is necessary for the production of the described effect, and the addition was made for the purpose of evasion or deceiving the public, or if the

whole specification fails to produce the desired effect, the patent is void, and an infringement will not have taken place unless the patent can be successfully practiced by following the specification, an infringement being a copy made after, and agreeing with the description laid down, and if the patent does not fully describe any thing essential to the making or doing of the thing patented, there will be no infringement by the first invention of processes, which the patentee has withheld from the public. (See Webster, Pat. Cas., 167.) Nor will it be a violation of the inventor's rights, to make a machine, or composition, for the purpose of ascertaining its sufficiency to produce the desired effect, or to ascertain the truth and verity of the specification.

1. Thomas Bruff, Senr., of Maryland, June 27, 1797. This is the first patent granted in the United States for an improvement in dentistry, and somewhat curious as a relic of a dentist whose name has never appeared in any of our numerous dental publications. From the fact that James Gardette's name appears as one of the witnesses, it is probable that he was a dentist of some ability. The patent was granted for a "perpendicular extractor."

"This instrument has a double claw, with a joint near the middle, and a spring to draw them together when set on the tooth. It has a fulcrum with two branches, one to answer as a handle for the left hand, to keep it on the adjacent tooth; the other, having a hook in the upper part of the end, serves as a guide and support to the lever which passes through it, and through the staple at the extreme end, and the point through the eye of the claw; under the fulcrum is a crooked cap (sliding on with a screw head, and turning on a pin) made to shift to suit the side and shape of the jaw.

"There is another cap made long, designed to rest on the front and back teeth equally, having a hole through the middle large enough to draw the claw through. The burr has a handle nearly like the common key instrument. It has a crooked blade near the extremity, to raise it perpendicular from the fulcrum; when turned by the handle, it passes through the hook of the fulcrum to the shoulder, which is about two inches from the handle, the point being small and round, passes through the eye of the claw, (which is sharp at the top,) and by a turn on the back of the blade, brings out the teeth in a perpendicular direction."

Signed, THOMAS BRUFF, Senr.

Witnesses: Jas. Gardette and Rd. Cenaf.

2. E. Bryan, July 13, 1829. Vertical extractor, in which the claim is

for making the claw to move on swivels. Mr. B. is better known as the biographer of Mr. Greenwood.

3. J. W. Rutherford, Albany, New York, January 4, 1831. Vertical tooth extractor: no peculiarity either better or worse.

4. Moses R. Hanson, Bangor, Maine, March 12, 1836. This is a forceps well fitted to the class of teeth to be extracted, with an attachment to rest on other teeth as a fulcrum.

5. Daniel H. Dickey, Boston, August 10, 1838. Extractor. This is so extremely *ridiculous* as to deserve notice. It consists of two claws so jointed that a wedge forced down between the ends opposite the tooth by means of a screw, will cause them to take a firm hold. To apply it, a plate with a hinged joint and hole, just large enough to admit the claws up to the joint, is laid along the adjoining teeth, the claws slipped through the hole on to the teeth; the wedge driven down by means of a screw, the end of the jointed plate depressed, while the tooth is raised *vertically*.

6. Cornelius Addle, Winthrop, Maine, July 13, 1833. A key, in which the only difference is, that the stem had a bend in it, by which means it was easier of application.

7. John McConnell, Philadelphia, September 29, 1839. A complicated key, in which one hook answers for all sizes and classes of teeth.

8. Moses J. Hill, Bloomfield, Indiana, June 7, 1841. A key in which a friction roller constitutes the bearing part of the bolster.

9. J. W. Baker & W. W. Riley, Columbus, Ohio, Nov. 8, 1845. A combination of the key, with forceps handles, but the action is the same as the key. For those who prefer the key to the forceps it may be of some advantage if they should have a patient prejudiced against the use of the key.

10. Enoch Osgood, Bangor, Maine, Jan. 9, 1849. "My invention is a compound fulcrum, partly concave and partly convex, of which the former rests on the surrounding teeth, and the latter on the tooth to be extracted."

11. Hiram Todd, Columbus, Ohio. Cylinder key.

The claw is fixed to a rod which passes through the hollow stem, connecting with a rack and pinion, worked by hooks on either side. It is easier of adjustment, and the same extracting power.

12. Charles H. Dubbs, Natchez, October 17, 1848. Screw forcep. A combination of the notches on the shaft of the screw, with the catch

of the click ; by means of which the screw affords additional power in extracting roots of teeth.

The simple combination of screw and forceps, is due to Dr. S. P. Hullihen, of Wheeling, Va. (See Am. Journal of Dental Science, June 1844, vol. —.) C. H. Dubs added the catch for holding the screw firmly, and patented it as above. John D. Chevalier produced the same effect, by a slightly different mode, which Dubs insists is an infringement. A violent controversy in the dental journals, as to priority of invention, ended as it begun.

Chevalier still advertises " his improved Hullihen screw forceps," so it is probable, that Mr. Dubs has not thought the ground sufficient to sustain an action.

" His mode of disposing of his improvement, is to sell the right of making, and individually using it, to any dentist, as a *life interest*, for three dollars." In three years his monopoly will be at an end, a rather short *life interest*.

13. Kirby Spencer, Athens, Georgia, October 17, 1848. Dentist's drill.

It is a tapered tube, in which are concealed the steel works which combine the endless chain, pulley, pinion and piston. The movement is like that of a syringe. It is a very handsome instrument, and very useful, but so complicated as to render it too expensive.

14. L. D. Walter, Fort Plain, New York, May 15, 1847.—Dentist's drill.

" A combination of the main-spring, pulley and cord."

15. Lemuel Merritt and S. Rodgers, New York, December 27, 1815.—Relieving tooth-ache by steam.

16. James Utley, —, November 5, 1817.—Tooth-ache remedy

17. Horace H. Hayden, Baltimore, Md. February 11, 1824.—Preventing caries of the human teeth.—*Claim*.

" The exclusive privilege of using and vending the emphyrheumatic oil (tar or balsam) and acid, obtained by the distillation of wood, which oil or acid, when properly modified, proportioned and applied, is used for the purpose of counteracting decay in the human teeth, and the diseases consequent thereto, and to the human mouth.

" By the daily use of it for two years, I have proved it to be a sovereign remedy for the diseases mentioned. Its specific qualities are owing to the antiseptic property which counteracts the caries in the teeth, allays the pain and irritability of the vessels of the teeth and mouth,

lessens the morbid sensibilities, and arouses and restores a healthy action. For deep caries and great sensibility of the parts, I apply the pyroligneous oil, with a very small proportion of the acid, aromatised with oil of cinnamon, cloves or other essential oil, to the cavity of the diseased tooth, on a deposit of cotton. This is repeated several times, as occasion may require. To correct a general disposition in the teeth to decay, for scorbutic, ulcerated or other diseased state of the gums, I use a solution of acid and oil in three parts of water, as a gargle three times a day."

This patent has been entirely overlooked by Dr. Hayden's biographers, and shows what errors great and good men may fall into, but Dr. H. nobly and well atoned for an error which, at that day, was comparatively venial, by the course he assumed during the last years of his life.

18. Samuel Pennington, Mt. Pleasant, Ohio, July 30, 1829.

Specific for tooth-ache. Composed of "whiskey, French brandy, spirits of turpentine, tar and Indian turnip."

19. L. S. Parmly, New York, June 17, 1820.—"Composition for preserving the teeth."

This is now known as "Parmly's tooth polisher." The record at the patent office being destroyed by fire in 1836, I am unable to give the ingredients.

20. Charles Newton, New York, September 25, 1825.—"Apparatus to keep free from saliva." Record lost.

21. Wm. R. Eagleston, Baltimore, October 4, 1817.—"Setting natural and artificial teeth." Record lost.

22. Charles Graham, New York, March 9, 1822.—Artificial teeth. Record lost.

23. Elijah A. Bigelow, Brandon, Vt., March 8, 1827.—Engrafting teeth. Record lost.

24. Anthony Planton, Philadelphia, April 5, 1828.—Mineral teeth without platina.

"The inventor says, that necessity, which is indeed the mother of invention, suggests this improvement: platina being so scarce that it could not be procured readily. A small hole is made through the teeth at the time of moulding, which, after baking, is filled up with a wire, and solder is melted on both ends of it: or a hole is made in the tooth, but not passing entirely through; into which the wire is introduced and solder fused around it. Teeth made in this manner, will never break

or separate from their connections, and time will show that this improvement brings artificial teeth to their perfection." Most of the English teeth of the present day are made in a similar manner, except that the hole is bushed with platina.

25. Thomas R. Vanderslice, Philadelphia, January 5, 1831.—Artificial teeth.

"Instead of applying a metallic plate on the back part of the tooth in the usual manner. To form the tooth in the ordinary mould, a small piece of ivory or other hard substance, with holes drilled to receive the wires, may be introduced."

Were we disposed to be fastidiously nice about the novelty of this, the old French teeth might be adduced, in which a groove was left for the reception of a wire, which was soldered to the platina cramps, and could be cut down flush with the porcelain, as in the above.

26. Samuel G. Chamberlin, Philadelphia, February 11, 1831.—Artificial teeth.

"Pieces of wire are inserted in the body of the tooth, previous to its being baked, projecting from the top, and to them the gold plate is to be soldered, by which the tooth is to be attached. I claim the glazing of the inside of the tooth, and polishing of the gold plate, so that the tooth may not absorb moisture, and no unpleasant roughness present to the tongue; the manner of fixing the tooth by means of platina and gold plate. This would differ from all others in this, that there is no interstice between the tooth and plate for food or moisture to collect."

It was probably necessary to solder the plate, (strap or stay,) after fitting to the plate, and before soldering to the main plate.

27. Daniel Harrington, Philadelphia, December 10, 1840.

This improvement consisted in using screw or pin heads, on the platina wires, or a staple, instead of the chisel or flattened form, inserted.

28. Henry Lawrence, Philadelphia, May, 1849.—Artificial pivot teeth.

"I make a headed screw of gold or other suitable metal, of a size sufficient to hold the pivot tooth firmly. My tooth is of the same size and shape as the ordinary pivot tooth, but with a hole entirely through, terminating in a countersink, to receive the head of the screw. The tooth being fitted, and the canal of the root prepared to receive the screw firmly up against the root." The claim is for "a tooth with an aperture clear through it, terminating in a proper bearing for a screw-head."

29. Geo. E. Murray, Philadelphia, December 4, 1849.—Artificial teeth.

After stating that the ordinary plate teeth are objectionable, for the following reasons, viz. if ever so well fitted, there will be a space between the strap and the tooth, the fastening is at a point above the edge of the tooth, allowing a leverage power. The rivets are frequently ground out, and in meeting, being in great danger of breaking. He describes his as follows: "A piece of metal of proper size, is taken, and the edges bent up: this plate is placed in a mould with the flanches inward, and the porcelain paste filled in as usual, and the plate will, by means of the flanches, become securely fastened to the tooth. Various variations of the plate may be made, for example, a flanche may project from the centre; or the inner edge of the flanches be made thicker than at any other point: they may be bent at right or oblique angles," etc. The claim is for "an artificial tooth, having a plate combined therewith."

For very many cases, it is the best article made, and is peculiarly adapted to molar teeth. The same tooth is described by M. Desirabode, in his "Science and Art of the Dentist," translated by C. A. Harris, M. D., for the Am. Lib. of Dental Science," in 1847, I find the following, page 411. After describing various modes of inserting cramps, he says, "to obviate these inconveniences, we have fixed in the tooth before burning, not simply cramps, but a piece of metal forming at once the cramps and the shaft by which the tooth is to be fixed to the plate. " This fixture is composed of a central shaft, from each side of which go off in the form of wings, little cramps, which pass into the paste and disappear."

This publication invalidates the patent.

30. W. Wilshin Riley, Columbus, Ohio, Nov. 18, 1851.—Artificial teeth.

"I claim the concave base, and the insertion of the platina in an oblique direction, and mode of attaching them to the plates without stays." The platinas entered the tooth at the lower internal edge in an oblique direction, so that when fitted, they rested against the plate, and were soldered to it. The tooth was rather thicker than usual, especially the six front ones, so that the base reached over the alveolar ridge, forming the concavity spoken of, and brought a greater surface of porcelain in contact with the plate, than in any other tooth. From some cause, the manner of inserting the wires has been abandoned, and now are inserted little flat pieces of platina, in about the same place as are the platina pins in our ordinary tooth.

Between these slips, after the tooth is fitted to its place, is passed flat pieces of gold, which are soldered to them and the plate. A continuous lining strap may be made very easily and neatly with these teeth.

31. James Cameron, Philadelphia, July 30, 1840.—Articulating instrument.

A perpendicular rod, "fixed in a base, with two sliding shafts similar to the lamp stand of chemical laboratories. A rod bearing a plate designed to support the upper jaw plate passes through a hole in the vertical rod, and is held at any point by a thumb screw; below is another plate, shaped something like the under jaw, (designed to support the lower jaw plate and draft,) which is moved up and down on the rod at pleasure. It is attached to the tube which slides on the rod, by a hinge, which opens up and down, and is regulated by means of a nut and screw.

The plates with the drafts, are fastened to the frame by screws, and the different parts of the instrument adjusted. The upper jaw is fixed like the human jaw, except, that it may be moved backward and forward: the lower jaw moves upon the hinge like the human jaw, and also up and down on the vertical rod. This is the best articulator known to me, although somewhat complicated, so much so, indeed, that it is difficult to understand a description without drawings.

The instrument as patented, excepting the foot in which the rod is fixed, was invented by *Daniel Neall, Sr.*, of Philadelphia, several years before Cameron secured his patent, and the same instrument was on sale in that city in 1838.

Neall was one of the pioneers of block work in this country, and a man of great ingenuity. He invented the "Vertical Printing Press," the best of its day, for which he received a gold medal from the Franklin Institute.

To him, also, is due the credit of perfecting drafts or models for the construction of artificial teeth, and a description of which will appear in a more appropriate place than this article, the same never having been noticed by previous writers.

32. Daniel T. Evans, Philadelphia, August 28, 1840.—An improved mouth mould, which being filled with wax, is taken of both jaws at once, by closing them on the wax. This impression is to be placed in a hinged articulator, and filled with plaster. The mould is made without a dividing plate, so as to allow the jaws to lap in taking the impression.

33. John Allen, Cincinnati, Ohio, Dec. 16, 1845.—Restoring the contour of the face.

"I claim the manner of restoring hollow cheeks, by means of metallic bulbs, constructed in the manner set forth, or by any other substance between the jaw-bone and the cheek."

34 J. Smith Dodge, New York, March 13, 1844.

"I claim the mode of inserting artificial teeth by enclosing a metallic tube within the wooden plug or cylinder, usually employed in fixing artificial teeth.

"I make the tube of gold or other suitable metal, of such length and size as may be required: with a cap or stopping at one end, to prevent moisture from entering the cavity, causing internal decay; or without the cap leaving a free opening through its entire length."

35. F. Hamilton Clark, New York, Feb. 13, 1849.—Securing pivot teeth.

"I make an opening in the root, in the usual manner, being careful to make it perfectly smooth, round, and of an equal size, from top to bottom. Into this opening, I insert a cylinder of gold, or other metal, made to fit it with great accuracy, but not so closely as to require much force to introduce it.

"This cylinder has a bottom of a spherical form, with a hole in its center, for the purpose of allowing a screw to pass through it into the center of the root, which is pierced and tapped to receive it. A flange encircles the outer end of the cylinder, for the purpose of retaining a filling inserted in the end of the root, when decayed. It has also a bar soldered across its inner side, about midway of its length, to hold the metallic pivot to which the tooth is attached, and occupies about one-fifth of the diameter of the tube. The screw which passes through the bottom of the tube and holds it permanently in its place, has a head fitted to the bottom, which being rounded, allows the screw to follow the opening made to receive it, although it be not parallel with the bed of the cylinder; hence it is perforated lengthwise, to allow the pus to escape.

"The pivot is made of a wire drawn to the exact size of the interior of the cylinder. The end to be introduced, is to be split with a fine saw nearly to the tooth, one side is filed flat to allow it to pass the bar against which it rests. A tooth set in this manner is easily removed, for the purpose of cleansing, and may be made very firm by inserting a very thin slip of wood in the cleft of the pivot.

"I claim the mode and manner of securing the cylinder in its place, as set forth."

This is a very neat mode of inserting pivot teeth, but it requires such delicate manipulation, as to greatly retard its general introduction.

The mode recommended by Professor Harris, in his Dental Dictionary, of cutting the screw on the outside of the cylinder, is much easier, and quite as good.

Desirabode describes, page 469, a mode of inserting pivot teeth with a screw; a mixture of Harris' and Lawrence's mode.

36. M. Levett and H. Davis, New York, Sept. 18, 1847.

"An invention for concealing the metal work used in the insertion of artificial teeth. It was done by means of a varnish composed of equal parts of shellac and linseed oil, with a little spirits turpentine, ground up with bismuth, vermillion and cobalt, in sufficient quantities to give the desired color. This is softened with spirits of turpentine, and applied over the surface of the plate and clasps with a brush." This was quite tough, and a plate to which it was applied, could be bent back and forth without detriment, but it could not withstand the action of fluids of the mouth.

Some kind of enamel was then prepared by Levett, and "rights" were advertised for sale. I am not certain that he sold *patent* rights to use it, or claimed it as a part of his patent, but presume that he was too well acquainted with the machinery of the law, not to evade this point. The exclusive right to this city, was purchased by Dr. John Allen, and used by him two years ago, being made a *feature* in his practice; but he found that the gum had not strength enough in the form he got it, to withstand the force which was applied to it in the mouth. In using it the teeth were mounted on gold in the usual manner, and the gum applied beneath and around them, and fused. For a more extended notice, see C. T. Cushman's article, American Journal Dental Science.

37. John Allen, Cincinnati, December 23, 1851.

"I claim, as my invention, a new mode of setting mineral teeth on metallic plates, by means of a fusible silicious cement, which forms an artificial gum, and which also unites teeth to each other, and to the plates on which they are set. I also claim to be the inventor of the said cement or compound, a full and exact description of which is herein given. I also claim the combination of asbestos with plaster of Paris, for covering the teeth and plates for the purpose of sustaining them in their proper position, while the cement is being fused."

"The cement may be formed of any of the known fluxes, combined with silex, wedgwood and asbestos, intermixed with gold and platinum

scraps, which form a metallic union with the plate. The compound which I prefer, is composed of *silex*, 2 oz., *white or flint glass* 2 oz., *borax* 1 oz., *wedgewood* 1½ oz., *asbestos* 2 drachms, *felspar* 2 drachms, *kaolin clay* 1 drachm. This should be intermixed or underlaid with gold and platinum scraps. The *gum color* consists of *felspar* ½ oz., *white glass* 1 oz., oxide of gold 1½ grains; mix, moisten and apply with a brush.

"The plates are constructed and the teeth arranged thereon in the usual way; I then apply the cement in a plastic state upon the outside, between and around the base of the teeth, so as to form an artificial gum; the teeth and gum are then covered with a mixture of asbestos and plaster, and the wax removed from the inside of the teeth, and the cement is applied thereupon, and also on the plate, so as to fill up all the interstices.

"When dry, the piece is put into a furnace, and heated sufficiently to fuse the cement, when it is withdrawn and cooled slowly. The plaster mixture is then removed, a gum color applied, and the work again placed in the furnace, and fused, as before, by which means the metallic back plates, solder and blow pipe are dispensed with, although back plates may be attached to the teeth if desired."*

38. Asa Hill and Emanuel G. Blackman, Norwalk, Conn., February 13, 1849.

"We claim the combination of gutta percha, as a base, with such other earthy mineral and metallic substances, as will shorten it, and render it less tenacious, harden it, and render it fit for a useful filling, and give it the *desired color*, without any noxious quality, or destroying its plasticity when heated, and the application of such compound substance to the filling of carious, hollow and defective teeth.

"This article is made by taking the gutta percha of commerce, and freeing it from its impurities and coloring matter, by boiling and working it, or by maceration, and combining with it when sufficiently heated with a dry heat to render it plastic, about two parts quick lime and one part each of quartz and felspar, all reduced to an impalpable powder, and may be varied in color by the addition of other earthy mineral or metallic substances, and slightly in hardness, by adding the filings of any of the metals used in filling teeth.

"It is entirely innoxious, becomes plastic at a moderate heat, hard-

* It is this invention which has been the subject of controversy between Drs. Allen and Hunter for some months and which is now in litigation between them.—*Ed. Rec.*

ens again when applied, and when reduced to the heat of the body, adhering firmly to the cavity, and is sufficiently hard and permanent for mastication."

When the American Society of Dental Surgeons fulminated its anathema against the use of amalgam, some *substitute*, easier of application than gold, and yet not liable to the charges brought against amalgam, became a great desideratum.

Soon after, the discovery of such article was announced, and it appeared in the market, as "Hill's Soft Stopping."

39. Matt. S. Foster, Trenton, N. J., Nov. 12, 1842.

"The nature of my invention consists in soldering a strip of metal of the thickness of a half-worn sixpence, and one-eighth of an inch in width, (more or less,) to the outer edges of the superior and inferior plates, designed to have incorruptible teeth fastened upon them; which teeth, are usually made in three sections but varying to fourteen. The flange is intended to give greater strength to the arch, and prevent the introduction of secretions between the joints."

This was the first *publication* of what is known as running or banding, although it was frequently used by block-workmen in order to conceal imperfections of filling, &c.

40. George Stewart, Philadelphia, July 3d, 1847.

"Dental lever joint spring. I claim the manner of forming the spring joint and arms, by coiling the middle of the wire so as to constitute the spring joint, and extending the outer ends thereof so as in part to constitute the elastic arms of the lever, in combination with a check plate."

An elastic wire is wound in the middle around the mandrel, about one-fourth of an inch in diameter, about three times. When the extremities of the wire are made to approach each other, the convolutions are diminished in diameter, and have a tendency to throw the arms apart. Through the spiral is placed a wire terminating on either end in a flat head of the same diameter as the spiral. Small spiral wings are passed over the arms and soldered at the outer extremities, so as to constitute one piece. The check plate alluded to, is intended to prevent the spring from being unduly bent, and is connected with the lower jaw.

This is a very pretty looking spring, and in some cases preferable to the usual form of spiral, but the general plan was described and figured by *Delabarre*, in the edition of his work published in 1820, page 444. Figures 184, 189.

The first publication of any thing relative to *chambered plates*, was the patent.

41. Alfred Riggs, New York, July 3, 1840.

He struck a plate to fit the mouth accurately, and perforated a portion of the surface resting on the palatine vault, with small holes. Over this, a plate was struck, forming a chamber about one line in depth at the center, vanishing to the alveolar ridge, and soldered firmly to it. The chamber thus formed, was at times divided into sections. In practice, it was found that the gum was drawn down into these holes causing such painful inflammation, that the plate could not be retained in the mouth. In addition to this, it could not be kept clean, and soon became intolerably offensive.

He also had a valve arrangement connected with his plates, but this does not appear in his patent.

42. Jonathan Dodge, M. D., New York, March 4, 1843.

This, the inventor styled "the application of the attraction of cohesion, and of capillary attraction in one and the same base, for inserting teeth." A plate was struck up in the usual manner, to fit the gum accurately : this was held to its place by "cohesive attraction;" being perforated with numerous small holes, brought "capillary attraction" to its aid. A plate was fitted over this, and soldered to it, and to which the teeth were attached, "leaving no space, air-chamber or cavity, in which might be lodged food, mucous, or other matter."

It answered a very good purpose, but never was extended much beyond the inventor's own practice. I dont recollect of seeing any mention of it in any journal.

43. Levi Gilbert, New Haven, Conn. February, 1848.

Claim.—"My invention is the application of atmospheric pressure to plates used in dentistry : the plate being single, and a chamber being sunk in the central part of the upper surface of the plate, in which a vacuum can be formed by the tongue."

When Mr. Gilbert's patent was announced, it was met, north, east, west and south by the assertion that the same object had been accomplished long before, and in the same manner, and Mr. G. soon abandoned all hope of pecuniary emolument, and we believe has given his invention to the public.

44. John A. Cleaveland, Charleston, S. C., June 20, 1850.

"In this, a plate is struck up to the gum, and in the central part of the plate an opening is made of about the size, and in the same position

as the chamber in Gilbert's. Another plate is fitted over this, meeting it on the alveolar ridge, and separated from it in the palatine vault one-eighth of an inch, more or less, and soldered to it. He claims the space *between* these two plates, as his invention, and not that part between the external plate and gum, at the point where the opening is made in the internal plate. If he can distinguish the difference in the principle between his plate and Rigg's, he can do more than I can, and why a patent should be granted two things so nearly identical, is a question which the commissioner might answer.—*Am. Journal.*

EXTRACTION OF TEETH.

BY DR. J. TAYLOR.

(Continued from page 150.)

In our last, we made a few remarks on the key, its use, mode of application, &c. &c. We shall now give our views of the forceps.* This instrument for common application possesses advantages, far superior to any other now in use, and we see no principle by which the application of force can be so judiciously applied. Hence the proper construction of this instrument is of great importance to the profession.

It might be a difficult matter to trace back the origin of this instrument. The leaden pair found in the temple of Apollo could hardly have been a model left in the patent office—nor could they have been made for use—for such forceps would prove very inefficient. They appear, however, to have been in use at an early period, but within our recollection they were universally badly adapted for the use designed.

The recent improvements in this instrument appear to have been first started by Mr. Cartwright, of London and Mr. Snell of this country. Since their day, we presume, that most of our old and experienced operators have had a hand in these improvements. The instrument in every particular has been improved in the last ten years. For what was then considered a good set of forceps, would now pretty generally be rejected.

There are two or three general requisites which this instrument should always have, and without which we regard them as very faulty. The

* Says Lindley Murray, "some nouns, from the nature of the things which they express, are used only in the singular form, as wheat, pitch, gold, &c.; others only in the plural form, as bellows, scissors, riches, &c." In accordance with this rule we always change the orthography of "forcep" to forceps.—*Ed. Recorder.*

first adaptation to the teeth, and this means a great deal. It does not mean *ne* *ely* a fit to the teeth out of the mouth, neither does it mean a fit when applied to the teeth in the mouth, which will place the operator in an awkward or constrained position, or which will place the operator directly in front of the patient. A position which does not give free motion to the flexor muscles of the arm used in handling the forceps is a bad one. We wish to *draw* the teeth with this instrument, and not *push* them. We use our right hand; when operating with the forceps, and stand at the right hand side of our patient, back of his arm. This is our position in extracting all of the teeth. In operating on the lower teeth, we are a little farther back, or nearly behind the patient, and standing on a stool, so that we can stoop over the right shoulder, and look into the mouth. The first and great advantage of this position is that we are out of the reach of our patient, and second, we can hold more securely the head. In extracting the upper teeth, our left arm passes over the left shoulder, and we lay hold of the patient's chin with that hand. The chin resting in the palm of the hand.

This enables us to give stability to the lower jaw and prevents luxation, &c. Without the head is held steady, it is impossible to apply the right force for the extraction of the teeth—hundreds of frail teeth are broken from this cause.

A forceps which would place us in front and to the left of our patient, for the removal of the left molars in the inferior maxilla, we regard as very objectionable, because we cannot so well steady the head, and the patient may and often will involuntarily throw up both hands to push us away, and will also often attempt to jerk the head from our grasp. True, if we have hold of a firm and strong tooth, in this he may fail, but if the tooth is frail, it is very often broken.

To give us the position we have stated, it will be seen that a very different kind of forceps will be required for either side of the mouth.

The next general requisition in these instruments, is what we would call perfect adaptation to the tooth. This was, until the last few years, the great defect of this instrument, for had the forceps been only properly adapted to one class of teeth, their excellence would have been apparent, and this would have led to different forms for the different teeth. A forceps which in grasping the neck of the tooth would press hard on the crown, would not answer, except, first, to crush the crown, and then remove the roots. The old blades made, serrated on their inner surface, to prevent them from slipping, is far more preposterous

than the advice of ——, which was, to shake them well before extracting, for the latter is often very necessary, the former never. We had rather have the blades so constructed as to *slip up* on the neck of the teeth. The easier they pass under the gum the better, requiring less force to get them where they should generally be.

The adaptation should be such as to embrace the tooth, above the free margin of the gum, and indeed, permit the points of the forceps to come in contact with the alveolus, without undue pressure upon the crown. This can be accomplished in almost all cases—and for this purpose, the points of the blades should be brought to knife-like points. This will require that the blades be finely tempered; not so hard and brittle as to break, and not so soft as to bend under the force applied. The inner surface of the blades should be hollowed out to fit the crown and neck of the teeth, like a mould, allowing the hardest pressure to be made at, or near the points of the blades, where they embrace the most sound and firm portion of the tooth.

The third requisition, and of some consequence, although not so essential as the others is, that the handle be adapted to the hand. When applied to the tooth, the hand should not be forced too much open; this would prevent a secure hold, and if the handles were too smooth they would slip in the hand, and if made with short angles, they would hurt the hand. They should fill up the hand so as to secure a firm grasp, and that portion embraced by the palm, be roughened to prevent slipping—and stiff enough to prevent springing. In our large forceps, for the extraction of the molars, and indeed, the bicuspids, we have one blade of the handle to curve around the little finger. This gives additional security when much force is required.

From the adaptation here described, it will be seen, that four or five, or even six or eight pair, will not meet all the cases or be adapted to all the teeth—one pair of forceps may answer the superior incisors, the cupidati, and bicuspides; yet, there are lateral incisors, too small for the forceps properly adapted to the others. We then need a right and left molar for the superior teeth, and indeed, prefer two pair for either side. That for the posterior molar, a little more curved, and not so large as for the anterior; besides, the posterior molar is generally more rounded on the posterior portion of its labial face, and the forceps which fits a large well formed anterior molar, does not fit this. For teeth of this class, not much weakened by decay at the necks, we prefer the blade which embraces the labial roots, to be double grooved, to suit

both roots; and for those very much decayed, we wish a hawk-bill point to pass up between the roots. The blade which applies to the palital root, should be single grooved. This arrangement would require six pair of forceps for these four teeth, and we see no reason why this number should not be had, particularly, when the operation can be facilitated thereby.

As we stand in the same position for the extraction of the molars of both sides, we have the handles of these forceps made all alike, and only change the blades so that the palital blade for the left side is adapted to the labial of the right. In the extraction of these teeth, the face of the patient is always turned towards me, and the head held with the left arm and hand. The old form of forceps, which required the patient's head to be turned from the operator, and the arm thrown from the body, with the back of the hand which holds the forceps, turned upwards, is to us, a perfectly useless instrument; because, in this constrained position, we loose the free use of the instrument. The change of this forceps to that already described, was made by ourself, some ten or twelve years since, and we believe the pattern is now most generally adopted. If in use before, it is not to our knowledge.

The forceps for the extraction of the superior *dens-sapientiae*, is bent at two obtuse angles—the blades broad and single grooved; which adapts to a large majority of the teeth. These bends in the bars of the instruments throw the handle on a line with the posterior bicuspid, or anterior molar teeth. The forceps for the superior bicuspids, cuspidati, and incisors, is slightly curved, just where the blades and handles unite with the bar of the instrument. This is to prevent pressure on the lower teeth, or what is worse, on the lip—wounding this, when caught between the bar of the instrument, and the lower teeth. We have recently made a slight improvement in the blades of this instrument. It simply consists in lengthening and shortening them, like a root forceps, and giving room for the crown of the tooth. The advantage is this, if the teeth are frail above the gum, your hold is as far under this, as the alveolus will permit. We have simply, a root forceps, adapted to the root before the crown is broken off. We regard this, as much more secure.

The further description of the different forceps used, and the manner of application, for the removal of the teeth, will be given in our next number.—*Dental Register.*

MISCELLANIA.

A SINGULAR CASE.—We have just been consulted with respect to a case, unlike any which we remember to have come under our observation before. A fine healthy looking girl, now in the 17th year of her age, presenting the following circumstances, in relation to her dentition. She has two right superior bicuspid teeth, and one left superior cuspидatus, imperfectly developed, having lost her incisors. She has two inferior cuspid, and two right inferior bicuspid teeth, having shed the inferior incisors. These too, are unnatural in their appearance, and imperfect in their formation, and all of them of the *first dentition*.* The mouth appears perfectly healthy, and there are no signs, whatever, of a second dentition.

It appears on enquiry, that she had the scarlet fever about the period when the teeth are first erupted, and one disease succeeding another so rapidly she did not recover her health, until within some three or four years past. Meantime she lost the most of her first set, and is now nearly toothless. Her mother informs us, that her sickness has been so severe for years, that all prospect of her life has been dispaired of. But she is now, entirely healthy, and of natural size, and development of frame.

What is the prospect of a subsequent dentition?

The Mother asked our service, and we gave it, as follows:—

Remove all her teeth,—wait six months, then, if all is well, and no signs of natural dentition appear, supply her with the best artificial denture, that can be made.

RECIPE FOR DISEASES OF THE GUMS.—The following recipe for diseases of the gums, when the alveolar processes are wasting away, is given in a letter to the Dental Register of the west, by Dr. McClure, of Carrollton, Miss. “Take sulphate of iron (common copperas) calcine it in a strong heat for three hours at least, or until it becomes a dark olive brown, it is then a tasteless inodorous substance, called *crous mastus*, reduce it to a fine powder, mix it with water or alcohol. It is a heavy drug—alcohol has but little action upon it; just before using it should be shook up. Then with an instrument, or a small point made of tough wood, with a little cotton, manage to get this drug in contact with the diseased alveolus. The tartar, must be removed, and the gums made to bleed freely. Apply the medicine, once a day at least, it will

take from two to six weeks to effect a cure. But it is specific; it will even arrest caries of the teeth."

THE MEDICO-DENTAL JOURNAL AND REVIEW.—The *News Letter* contains the prospectus of the above named periodical, to be published half yearly. Edited by C. O. Cone, M. D. Dental Surgeon, and Christopher Johnston, M. D. Physician and Surgeon.

MUNIFICENCE.—M. Orfila, a distinguished Physician of France, recently deceased, has made the magnificent donation of £4800 to different medical institutions of the French empire.

THINGS TO BE REMEMBERED.—The natural teeth are worth more than the most precious jewels. Much more skill is required to *save*, than to substitute them.

The extraction of a tooth, is an acknowledgment of our ignorance. For if we could save a tooth, it would be a crime to extract it.

No dental operation can be performed too well.

The very best materials, are not too good, to go in the mouth.

No great professional excellence can ever be attained, without the closest attention, the most unremitting industry, and dogged perseverance.

Never slight an operation, for the sake of doing it *cheaper* than your neighbor. It were better to lose the patient, than to lose your own self-respect.

ATMOSPHERIC PLATES—HOW TO OBTAIN A PERFECT FIT.

BY WM. O. LAIRD.

DR. ALLEN—It is well known to every dentist that plates struck from a wax impression almost *invariably* require bending up in front and across the roof of the mouth. The following is my method:—after obtaining my metallic casts, I strike up a plate of "pattern tin," apply it to the mouth, and gently press it, so that it touches every place perfectly. I then remove it, and run in my plaster, and from this I obtain a new set of casts from which the gold plate is struck. By this method, the fit is *indeed perfect*. The *tin* above mentioned is manufactured by Jones, White & Co.

Stittsville, N. Y., May, 1853.

REMARKS ON THE ABOVE.

The plan described by Dr. Laird was first demonstrated to us by

Mr. Gilbert, the inventor of the central cavity plate, while endeavoring to introduce his patent plate to the dental profession, several years since. We tried it in several cases and found that it worked tolerably well, but when proper care is observed, while taking the impression, and striking the plate, we almost always succeed in getting a good fit by the first attempt and thereby supercede the necessity of making two casts.

If the above plan be adopted and the central cavity used the tin plate will be liable to be bent out of the proper form by the effort necessary to remove it from the mouth. To obviate this difficulty, Mr. Gilbert recommended, that after the tin was gently pressed to every part of the jaw, the cavity be pierced with a small point to admit the air and destroy the pressure, when the tin can be removed without any difficulty.

—*Ed. Recorder.*

QUEENS PORTABLE FORGE AND BELLOWS.

This is one of the most convenient articles for making castings, forging small instruments, melting gold, and other processes, where fire is required, for the dentists use that has ever been invented. By attaching a small flexible pipe to the bellows the process of heating up the plate to near the fusing point of solder can also be accomplished with great dispatch. The price of this article, owing to its general introduction for the mechanic arts, is also much less than any that we have seen made exclusively for the use of dentists. They may be obtained of F. P. Foggler, at 210 Water-street.

CROFOOT & LAIRD.

It will be seen by referring to our advertisement sheet, that Mr. Crofoot, whose block teeth have long been celebrated among dentists, has opened a large assortment of all kinds of teeth in our city. These teeth compare favorably with any now, or ever heretofore, for sale in New York. Mr. Laird, formerly with Jones, White & Co. has the sale of these teeth and will be found as obliging and courteous as when in the employ of those celebrated manufacturers.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. VII.

JUNE, 1853.

No. IX.

RHIZODONTRYPO—NEURHEMAXIS.

Review of Drs. CONE, GARDETTE, and JOHN R. McCURDY, editor of the Dental News Letter. By S. P. MILLER, Worcester, Mass.

To the Editors of the Dental Recorder:—The readers of your Journal are familiar with the fact, that, during the past year, a new feature in the practice of dental surgery has been introduced to the dental profession—that two individuals, Dr. Hullihen and myself, some hundreds of miles apart, claim to have originated the same practice, each without knowledge of the other, and each to have communicated his own ideas to professional friends for the purpose of testing its merits on a larger scale before giving it to the profession *generally*. Several papers have been written on the subject, embracing the origin, character, and results of the new treatment, most of which have been published in the Recorder. In order to explain *my* position, clearly, in relation to the subject, it will be necessary to go back to the time when I first entered upon what was to me a new field for physiological investigation.

Recuperation is a principle or power inherent in organized matter for the repairs of injuries in both the animal and vegetable kingdoms, and is possessed in different degrees by different tissues.

The activity of this power is often manifested on a grand scale in the restoration to health and usefulness of some of the most important functions of our animal nature. A knowledge of this fact suggested the expediency of affording an opportunity to witness a display of its energy in the treatment of exposed dental nerves on a new plan.

Incised wounds, under favorable circumstances, heal without difficulty; but *any* wound, however slight, is always accompanied by irritation which causes an increased flow of blood to the irritated part.

“Ubi irritatio ibi fluxus.”

In punctured wounds, if the puncture be through a tendinous expansion, irritation and inflammation supervene, which, unless they terminate in *resolution*, result in disorganization of the cellular tissue and the formation of pus, which requires an artificial opening for its escape.

Corresponding to the cellular tissue, beneath its less vascular, unyielding aponeurotic covering, is the dental nerve surrounded by an inflexible bony tube—the root of a tooth; therefore, in excavating a carious cavity, if the pulp be but *slightly* wounded, irritation succeeds, causing an augmentation of the vascular circulation and consequently an undue pressure of blood within the bony canal. As the bony structure will not yield to the pressure within, unless nature resort to her grand remedy—recuperation, to heal the injury and equalize the circulation, or the pressure be relieved by allaying the vascular excitement by artificial means, inflammation and suppuration of the nerve usually follow. That congestion, inflammation, and suppuration, in such cases, are the result of a sudden and rapid destruction of the dental blood vessels is beyond doubt. What operator has not witnessed the instantaneous relief afforded by uncapping an inflamed and painful nerve and puncturing it through the carious cavity, by which its vessels were at once relieved of their tension? The same result is produced by breaking a tooth by which its blood vessels are ruptured and the pain arising from pressure removed. The equilibrium of the circulation is sometimes re-established by stimulating the capillaries which have an “action distinct from that of the heart” but when that cannot be done, the offending organ must either be removed or an artificial opening be made to remove the congestion. Now if the organ may be saved, as is frequently the case, after it has become diseased from any known cause, why may not the disease be anticipated and the cause removed by timely and proper treatment? If pain and inflammation arising from congestion of the pulp may be lessened by opening its vessels through the *carious cavity*. Why may not the same result be accomplished through the *gum* and *alveolus*? And why may not a given treatment *prevent* a disease which it has the power to cure if the nature of *both* be well understood?

In other words if an unnatural accumulation of blood in a dental nerve may be removed by an artificial opening, may it not be *prevented* by the same treatment? At the commencement of my experiments the object of perforating the root was twofold—first, to amputate the nerve and cut off sensibility between the opening and the nerve chamber in order to complete the excavation without pain. Second, to provide an outlet for the discharge of bloody serum while a re-union of the nerve was taking place, also for the evacuation of pus should the nerve suppurate. But it was soon found that this theory was not applicable to all

classes of teeth, as stated in a previous number, and that some other method must be sought for that would admit of general application. Hence, for general practice, it was resolved to anticipate inflammation by depletion of the nerve only. Such were some of the considerations which induced me to commence and continue a series of experiments on the dental nerves in their normal state.

That cases have terminated successfully in which teeth have been filled over exposed nerves without suppuration taking place, or an artificial opening being made, is within the knowledge of every respectable dental practitioner, especially where capping the nerve has been employed. I well remember such results in the early part of my practice near twenty years ago, although not of frequent occurrence. A similar result has been observed, occasionally, in setting artificial crowns upon roots after their nerves had been wholly or partially removed by mechanical means. But in a large majority of cases, if the operation were completed at the first sitting, and no way afforded for the secretion from the wounded nerve to escape, inflammation and alveolar abscess followed as a general rule. My method, pursued for the last fifteen years, has been to insert them *temporarily*, on soft wood pivots, and request the patient to remove them once or twice daily, for a week or more, in order to give vent to the discharge from the ruptured blood vessels, until the nerves had cicaterized, and then to set them *permanently*.

This method has rarely been unsuccessful. It has been observed, also, in cases where the instrument for removing the nerve was carried nearly to the extremity of the root without being able to remove it, wholly, and where considerable time intervened between the two operations, that it (the nerve) sometimes regained its sensibility down to the point where the drilling for the pivot hole terminated. That its wounded extremity "healed over" was inferred, as no discharge could be detected by the introduction of clean, dry cotton. These considerations suggested the experiment of removing the pulp in filling teeth, and allowing its radical extremity, or that portion of the nerve between the perforation and the end of the root to remain and cicatrize, and thus help to sustain the vitality of the tooth, or be disposed of by any of the processes that nature might establish. I have known very little trouble to arise from such cases, and it has been accounted for on this ground, partly, the pulp being removed the tooth was not *morbidly* affected by variations of temperature which, as every one knows, are a prolific source of irritation. Notwithstanding I had met with ordinary success

in the treatment of exposed dental nerves after the methods in common use, the failures that now and then occurred were unsatisfactory—so much so, that I determined to give the subject farther consideration, and if possible, find out some better method. Although the theory under consideration was in contemplation as early as the summer of 1849, I did not venture upon the practice till June 5th, 1850, when I commenced a course of experiments, the results of which, up to August the 16th (the day after General Taylor's funeral obsequies in Boston) were communicated to a legal friend in Boston, engaging at a future time, to reduce the subject of our conversation to writing and lodge it with him for future convenience. On the same day (August 16th) I called on Dr. C. Eastham, and informed him that I was engaged in experiments on the dental nerves, and when the subject was more fully investigated, the results should be made known to him. In the month of September following a letter was addressed to Dr. J. W. Smith, then of Northampton, Mass., giving him the modus operandi and the success that had attended the new practice up to that period, in which I requested him to unite with me in testing its merits. October first, the subject of my *first* operation, Miss H—— called to have other teeth filled. During her stay, a medical friend, Dr. S. Tracy, came into the office, accidentally, whose attention was called to the subject, and whose statement will hereafter appear. His attention was directed to the fact that the opening to the nerve, *through the gum and alveolus*, was closed by a bony deposit in the perforation of the root nearest the nerve, which is no uncommon occurrence. After hearing expressions of satisfaction from the patient, and the results obtained on others, from me, he pronounced it a new and interesting feature in dental surgery. Feeling impressed with the novelty and value of the discovery or more appropriately termed, perhaps, new mode of practice, on the twelfth of the same month, in pursuance of the conversation with my legal adviser in Boston, in August preceding, the principal points of the new treatment were embodied in a letter to him which was retained until an opportunity offered (Dec. 12th, 1850) for delivering it personally. At the last named date, the method of operating together with the results, so far as could be ascertained, were made known to Drs. Flagg and Eastham, with the request that they would co-operate with me in testing the new practice before giving it to the public generally. A long conversation ensued between Dr. Flagg and myself on the subject, in which he expressed a favorable opinion

and promised to join me. But as will appear by his letter, he did not venture to engage in it till about a year afterward.

Matters went on in this way until the last of winter or early spring, 1851, when on a visit to Dr. Smith, I described the operation to him personally, and again in May following, at Worcester, on his way to Brooklyn, N. Y., to join a copartnership with Dr. Bridges, I gave him another minute description and urged him to commence the practice, which he promised to do. Nothing more was seen or heard of Dr. Smith in relation to this subject, until the latter part of January 1852, at which time he came to Worcester. Up to that period he had not attempted the operation; but during his stay, witnessed it several times in my office, since which time he has practised it with success. During the interim between May 1851, and January 1852, Dr. Smith described the modus operandi to Dr. Bridges, his partner, who brought the subject of perforating the roots of teeth, through the gum and alveolus to the nerve, before the American Society of Dental Surgeons, August 6th, 1851, at its annual meeting in Philadelphia.

As Dr. Bridges has given an explanation of his remarks on that occasion in the March number of the Recorder, comment from me is unnecessary. I will add however, that I did not see Dr. Bridges after the annual meeting in New York, 1846, till June 1852—a period of nearly six years, nor did I hold any correspondence with him, whatsoever, on the subject.

During the month last mentioned, Dr. Bridges came to Worcester, and on the 28th, witnessed the operation in question, as appears by a record on the margin of my Journal. Dr. B. will here allow me to correct an unintentional mistake. He says: "The only difference between his practice *then*, from his former method (as I had understood and practiced it,) was, that he passed his drill through the gum, alveoli and fang of the tooth to the nerve, so as to draw blood, and then by filling directly on the wounded part completed the operation." Previous to April '52 in a large majority of cases—say nineteen twentieths, I had passed the drill *through* the gum instead of *under* its margin. At this period I commenced, for general use, to insert the point of the drill *under* the festoon of the gum, especially where it was *thick*, and, for many cases, still practice and prefer it. It matters not as to the result upon the nerve, whether the puncture be *through* or *under* the gum. The only effect is upon the gum itself, therefore, the operation may be varied according to circumstances. In the early part of my experiments

a small flap was sometimes raised a little way from the terminal margin of the gum but without advantage. In short, a variety of experiments has been instituted, at different periods, with a view to perfect the operation and render it as serviceable as possible. It is by no means improbable, that, in the onward progress of physiological and pathological research, the practice is to be improved by the suggestions and experience of others. As stated by Dr. Bridges in his article referred to, an arrangement was entered into between us, one month previous to the annual meeting, that as he "had heretofore touched upon the subject at Philadelphia," he should *renew* it at Newport, and I should follow with a full description of the operation and the records of over two years of successful practice."

Pursuant to such agreement with Dr. B. it was my intention to have been present at the commencement of the session, but was prevented by the reason given in the Boston Med. and Surg. Journal, which has also appeared in the Recorder, in an extract from that Journal by Dr. Cone, viz : "the severe illness of my wife which prevented my arrival at Newport till after the meeting had adjourned." On the first day of the session it was not deemed safe by the attending physician for me to leave home. On the morning of the second, after consultation, it was found that I might go with comparative safety. Accordingly, I took the eleven o'clock train of cars for Providence. Arrived at P. at the usual hour, but was obliged to remain there until six o'clock in the evening, as no boat left for Newport before that time. While in Providence, dined with the superintendent of the "Dexter Asylum," and was carried by him, at five o'clock to the office of Drs. Hawes', where I remained till it was time to take the boat. Arrived at the "Ocean House" at ten minutes past nine o'clock, P. M., and within fifteen or twenty minutes after met Dr. Bridges, and was informed by him that the meeting had adjourned. He also informed me that I was too late—that another man had got the start of me. To the enquiry as to who it was, he replied "Dr. Hullihen." Within an hour after my arrival I held a conversation on the same subject, with Drs. J. H. Foster, of New York, and E. G. Tucker, of Boston, to whom I gave an account of my experiments and the success that had attended them. These gentlemen also informed me that Dr. Hullihen had been following a similar practice. Late in the evening, Dr. H. and others were invited by Dr. Bridges to visit my room and examine some specimens of artificial work on Dr. Allen's plan, which I had taken to Newport at the *special* request of Drs. Allen and Bridg-

es. While the gentlemen were in my room conversing, and examining the specimens, I addressed a remark to Dr. Hullihen, alluding to the subject under consideration, by saying I had recently been informed that he had been pursuing a course of practice for exposed dental neves similar to the one I had pursued for the last two years. To this remark he made *no reply*. Observing that he manifested an *indifference* amounting to an *unwillingness*, to entertain the subject, it was deemed that any further allusion to it would not be very graciously received. It was, therefore, discontinued on that occasion. As the subject had been one of deep interest to me for more than two years, I had a desire to exchange ideas with Dr. H. in regard to it, inasmuch as I had understood there was no difference in our practice. But he showed no disposition to continue the conversation after I had introduced it. This circumstance I noticed at the time and thought it very unusual, unless he wished to enjoy a monopoly. It seemed the more strange, as he had been informed by Dr. Bridges "on the floor of the American Society of Dental Surgeons" that I had been engaged in the same practice. Dr. H. had a perfect right to do as he did, and his *motives* for doing it, I shall leave for others to judge.

As the meeting had adjourned, I resolved to leave for home in the five o'clock boat the next morning; but, as I did not retire to bed till after midnight, overslept and did not arrive at the wharf till after the boat had left; therefore, was obliged to return to the Ocean House. At the breakfast table conversation turned upon this topic in which several members joined; during which I asked Dr. Hullihen the following question; only, "do you find the operation as successful on the molar as on the bicuspid and single teeth?" to which he replied "yes." I did not see Dr. H. after breakfast. During the forenoon I had frequent conversations with Prof. J. D. White, of Philadelphia, and Dr. A. Hill, of Norwalk, Ct., one of the editors of this Journal, to whom I communicated my ideas and method of practice, with results, and from whom I received an outline of Dr. Hullihen's mode of treatment. I also mentioned to *both* of these gentlemen, Dr. Hullihen's apparent unwillingness to entertain the subject when at my room, and, such being the case, it was not deemed advisable to press the matter further at that time. I also made the same remark to Dr. Bridges during the morning, and to Dr. Stearns after my return home.*

* I will here remark, once for all, that I do not advert to any member of the profession, for the purpose of involving him, in the least degree, in this controversy. I speak of him only as a matter of fact. I am under no necessity, nor have I any desire to press

Between the middle of August and the first of September, (1852), I prepared an article for the Boston Med. and Sur. Journal which contained a description of the various experiments* instituted by me—the results in which they eventuated—the instruments with which they were performed, and the manner of preparing those instruments, as I had been in the habit of doing it for more than two years previous.

Although the article was written at the time above stated, owing to sickness in my family and other causes not necessary to mention, the copy was not finished until the morning of the 4th of October, the day on which it was dated and carried to the editor in Boston. During this period, the August number of the Dental Recorder came to hand; but it contained no information or suggestion on this point but what had been familiar to me nearly two years. In the publication of my experience (republished in the Nov. number of the Recorder) no mention or allusion was made to the practice of Dr. Hullihen, for which my acts and motives have been criticised and censured by some two or three individuals whom I shall presently notice. Complaint has been entered against me by several of Dr. Hullihen's friends, in which they charge me with neglect of courtesy, for taking no notice of him in my paper. Inasmuch as I was not indebted to him for any thought or suggestion in relation to the theory or practice of the operation, nor to any one, save and except that Being who alone gave me the power to think and act for myself, and inasmuch as the article in question contained nothing but what was original, I claimed the right to give my own experiments, and the results that grew out of them, a wider circulation than had already been given, and in my own language, without in any way fetering to Dr. Hullihen whose *person and practice were unknown to me at the time they were made*. Nor was I bound to notice him by way of courtesy, as I received none from him on an occasion when he had ample opportunity to show it. Therefore, the charge of "neglect of courtesy, the absence of a proper acknowledgment of Dr. Hullihen's claims," &c., comes with an ill grace from the friends of one who has shown himself guilty of the first breach. In view of the circumstances

any one into my service against his wishes. Nor have I any right, even though I had the desire to embarrass the friendly relations subsisting between Dr. H. and other members of the profession.

* Those experiments eventuated in Rhizodontrypo—neurhœmaxis—the operation of drilling the root of a tooth, either through the gum or under its margin, to the nerve, so as not to impair its vitality or function, but to open its blood vessels and relieve them from the increased pressure of blood consequent upon irritation excited by operating on the diseased organ."—*Boston Med. and Surg. Journal*, June 1st, 1853.

as above stated, and which are *true*, I was, and still am under no obligation to him, whatever. I owe him nothing on the score of theory or practice, I owe him nothing on the ground of professional ethics, I owe him nothing by way of courtesy, as this was denied me by him personally, on an occasion when he might have manifested an inclination to converse upon the subject, and not a *repugnance*. Dr. Bridges remembers well the effort I made to introduce the subject on the occasion alluded to, and the failure I met with. Dr. Cone, too, knows it, for he admits in his last article, that the subject "was named by me." Now, Drs. Hullihen and Cone may make the best shift for themselves within their power, and if they can make it appear that they were not *tenaciously taciturn* on the whole subject, and did not exhibit symptoms of not wishing to have their matter disturbed after it had been so nicely cut and dried, they will be more successful than I apprehend; and if they can show that the want of courtesy, about which so much complaint has been made, did not *commence with themselves*, they will be equally fortunate.

Following the publication of my article in the Boston Med. and Surg. Journal for Oct. 20th, there appeared in the same Journal for Nov. 10th, a short note from C. O. Cone, M. D., *ex-professor of mechanical dentistry*, in the form of a request to the editor, that he would re-publish his report made to the Am. Soc. of Dental Surgeons convened at Newport in Aug. previous. The note is as follows:—

"To the Editor of the Boston Medical and Surgical Journal."

DEAR SIR,—My attention was called this day to an article in your Journal of Oct. 20th, by S. P. Miller, M. D., which is calculated to convey an incorrect impression to your readers, both as regards the history and character of an important operation in dental surgery. I therefore beg that you may give a place in your Journal to the following, which is the original manuscript of a paper read before the American Society of Dental Surgeons, on the 4th of August last, and a copy of which was first published in the Dental News Letter of Philadelphia.

Respectfully yours, &c.

C. O. CONE.

Baltimore, Oct. 28th, 1852.

As the report accompanying this note is familiar to the dental profession it is not necessary to insert it here. The note charges that my article "is calculated to convey an incorrect impression, both as regards the history and character of an important operation in dental surgery." Now, as the article referred to by Dr. Cone is confined wholly to my

own experience in the important operation referred to, how, then, did I convey an "incorrect impression" either in matter or manner, in giving a truthful description of *my own practice—its origin and history?* Who has a better right, or who is better fitted, generally speaking, to give the history or character of an invention or discovery than the one who makes it?

To Dr. Cone's note I replied through the same channel for Nov. 17th, saying, an "examination of the documents referred to" (meaning his report which appeared Nov. 10th) shows that, "in the year 1848," Dr. Hullihen *intimated* to Dr. Cone that he was engaged in making some experiments and observations in relation to this feature of dental practice," but did not inform him nor anyone else, *it would seem*, what those experiments and observations *were* until "during the winter of 1850 and 51." This remark was based on the assumption that, as Dr. Hullihen had *refused* to impart a knowledge of his practice to a man of Dr. Cone's professional standing till the "winter of 1850 and 51," he also *withheld it from others*; and I respectfully submit the question, whether or not the inference was a legitimate one in view of Dr. Cone's statement? But it seems, from testimony which appeared afterward, that I was mistaken—that Dr. H. *did* communicate this new mode of practice to *two students* and one physician (whose office joins his,) as early as 1846, and taught them to consider it as one of the most important discoveries in dental surgery. And yet, "in 1848," two years after he had become fully satisfied as to its "importance," he "declined reporting his experience" to Dr. Cone and did not report to him the *nature* of his experience and observations "till the winter of 1850 and 51"—*five years* after he had become convinced of their practical value. Near the close of my article, I remarked that I did not clearly understand in what way my previous paper was calculated to convey an incorrect impression in regard to a matter wholly original with myself, and asked the following question. "Will Dr. Cone explain himself in some one of the dental Journals?" After a few other remarks, not intended to give offence, I said, "We shall look to Dr. Cone for a solution of the problem in his usual clear and forcible style."

This brought forth a rejoinder from Dr. Cone in the same Journal for Dec. 15th, (re-published in the Nov. number of the Recorder,) in which the writer charged that my language was discourseous, and threatened to chastise me in a dental journal, and by an article in the Feb. number of the Recorder—the *attempt* was made. I am willing the

world should judge between me and Dr. Cone on all matters of courtesy and gentlemanly bearing between us, by a perusal of the article he complains of, and his reply to it in the Dec. and Feb. numbers of the Recorder.

And I beg the profession to read those articles, with that in the Boston Med. and Surgical Journal, Nov. 17th, to which they are in reply, and see "what manner of man he is."

I cheerfully leave him in this connection to the judgment he merits.

In his rejoinder he says: "I have no where furnished Dr. Milier with the inference that Dr. Hullihen had no evidence of the treatment of exposed dental nerves by his operation previous to the winter of 1850 and 51; but on the contrary, the whole tenor of my paper published in your paper of Nov. 10th, contradicted any suspicion that might arise, that Dr. Hullihen concealed this operation, until he had filed a "*written description*" with his "*legal adviser, or for any sinister purpose.*" What did he say in his written report read before the American Society of Dental Surgeons, at its annual meeting in Newport, August 4th, 1852? "In the year 1848, during a conversation held with Dr. Hullihen in relation to the treatment of exposed dental nerves, he expressed an unwillingness to have his previous opinions published, and *declined* reporting his experience in the treatment of exposed dental nerves, *intimating* at the same time, that he was engaged in making some experiments and observations in relation to this feature of dental practice." What were Dr. Hullihen's "*previous opinions*" which he "*declined reporting?*" Were they different from those he *then* entertained? It would seem so, and that they were set aside to make room for those that were *then* occupying his attention. If his "*previous opinions*" were such that he still felt an unwillingness to have *them* published, might he not have communicated his *new method* of practice to a man of Dr. Cone's professional *eminence*, and invited his co-operation in testing its merits on a larger scale? But from Dr. Hullihen's witnesses it will appear that his "*opinions*" in regard to his "*operation*" were settled long before his "*conversation*" with Dr. Cone "*in the year 1848.*" Now *why* should Dr. Hullihen, in "*1848,*" decline reporting his experience in the treatment of exposed dental nerves to a professional brother of Dr. Cone's *intellectual calibre* and "*attainments*"—a treatment embracing an operation which he taught his students "*to esteem as one of the most valuable operations in dental surgery,*" as early as 1846—two years previous? "*The attainments and eminence of Dr. Hullihen, as a dentist and a surgeon,*

would also not only forbid the probability of his harboring professional secrets, but would lead to the conclusion that this operation to which he attaches so much importance, would, early in its discovery, be made the subject of scientific inquiry and debate with such gentlemen of medical attainments as he most frequently met. In confirmation of this, I append the following letters which most conclusively establish the claims of Dr. S. P. Hullihen, which have been assailed by Dr. Miller." What claim do these letters establish? Simply that of priority.

To whom do these letters refer "in confirmation" of the fact that Dr. Hullihen made his discovery "the subject of scientific inquiry and debate with such gentlemen of medical attainments as he most frequently met?" Three dental students, and a physician having an office in an adjoining room. Were these the *only* "gentleman of medical attainments" with whom he met from 1846 to the "winter of 1850 and 51?" Let it be fully understood that I do not, for a moment, question the statements of Dr. Hullihen's witnesses, because all of them were his students, save one, Dr. Frissell, and he a personal friend in a room adjoining. I have no doubt of their high professional and moral standing, and that the testimony given by them is *correct*. In addition to *priority* of discovery, it points to another fact, unless Dr. H. can show to the contrary, by other testimony, that his discovery was confined to a limited circle of professional friends, for several years, after he had become fully impressed with its value. Why, if, as Dr. Cone says, the attainments of Dr. Hullihen "forbid the probability of his harboring professional secrets," did he not communicate "this operation to which he attaches so much importance" to such "gentlemen of medical attainments as he most frequently met" at the annual meetings of the Am. Soc. of Dental Surgeons, of which he has been a prominent and active member ever since its formation—to such men as Profs. Harris, White, Arthur, C. C. Allen, and others who were prosecuting their researches in this branch of practice with untiring energy and giving their results to the profession with a liberal hand in the form of essays in the public journals, and discussions before the Society? Where was this silent member, all this time—a period of six years, whose light was to break forth in 1852 and enlighten the minds of his professional brethren who had hitherto been groping in darkness?

Where, all this time, was this great discovery that was to undo the work of years and entirely revolutionize an important branch of medicine? Historical facts, derived from the parties, themselves, thus far,

show that it was retained as a family heritage—"under a bushel," so to say, notwithstanding the manager had full confidence in its power to work a great and radical change when suffered to escape—that now and then a ray of light *did escape*, of necessity, to enlighten the dental household, that, with one exception, (Dr. Frissell) nothing has been shown, publicly, to prove that its beaming brightness was enjoyed *beyond* this household, until it sent a single ray to Dr. Cone, "during the winter of 1850-'51."

The improbability of Dr. Hullihen's "harboring professional seerets" may be judged of by the following extract from a letter from Dr. J. Scott, Dentist, of Pittsburgh, Pa., to Dr. G. O. Stearns, in reply to a letter from Dr. S. making the enquiry as to what he (Dr. Scott) would charge for imparting a knowledge of articulating and antagonizing teeth upon the plan of Dr. Hullihen. To Dr. Stearn's letter, Dr. Scott replied as follows:—

"Pittsburgh, Nov. 22d, 1852.

DR. G. O. STEARNS—*Dear Sir*,—Yours of the 19th is received. In reply, I paid Dr. Hullihen two hundred dollars, which I believe was his general price, though in some instances he has charged more. I am aware that in one instance, at least, his charge was five hundred dollars."

Now, if the statement of Dr. Scott is *not* true, Dr. Hullihen has it in his power to refute it, which he will probably do, as it savors rather strongly of "professional secrets;" but if it *is* true, and I know of no reason to doubt it, the inference is *irresistible*, that if Dr. Hullihen harbors "professional secrets" in *mechanical*, he does in *surgical dentistry also*.

Dr. Stearns, who practised dentistry in Pittsburgh from 1848 to '51—three years, frequently heard of Dr. Hullihen's "professional secret," for mounting and articulating teeth, (for which Dr. Scott says he paid him "two hundred dollars," as his *general* price, and that in one instance he (Dr. H.) received *five* hundred dollars,) but was unable to obtain it without paying for it. If it was *not* a "professional secret," why was such an exorbitant price demanded, and paid, for it? Will a man ask five hundred dollars for that which he has the liberality to bestow upon the profession gratuitously? And on the other hand, will a man pay five hundred dollars for information which is before the public, and which has become common stock? Will he pay his money freely for that which he can have *without* pay? Does not this show that Dr. Hullihen imparted his secret only in traffic? Probabilities

founded on his "attainments and eminence," may look *one way*—the facts look pretty strongly the *other way*.

Be it known, that I have no objections to Dr. Hullihen's receiving compensation for his services, whether for dental operations or mechanical improvements, but, let every man be assessed at his true value, if it can be found. Let it not be said of *any* man, that his "attainments forbid his harboring professional secrets," after he has traded them in the market, and made all the money from them he can. Let the benefactions of those who *are* benefactors, and the liberality of those who *are* liberal, receive commendation. Give every man his just dues. It is announced that we are to be favored with a new plan of mounting single teeth by Dr. H., within a few weeks, with an illustration. Has it any relation to the "Antagonizing secret?" "We shall see what we shall see."

In what I have said, or shall say of Dr. Hullihen, nothing has or shall come with any design to injure him. This controversy was commenced by Dr. Cone. He has instituted comparisons between me and Dr. H., wholly prejudicial to me in certain particulars. I can show that, in these particulars, at least, the comparison is unjust. I must and will take care of myself, using no other means than such as are made necessary to my defence by Dr. Cone's form of attack. What is the evidence on the question of professional secrecy by Dr. H. and myself respectively? His evidence appearing in the Boston Medcal and Surg. Jour. for Dec. 15th, and Dec. number of the Recorder, would show that Dr. H. had performed his operation as early as 1846, on Dr. Frissell, and that three students, about that time, were made acquainted with it; yet nothing has transpired to show that Dr. Hullihen ever communicated the matter to any of the *profession* except that patient and his three students, till the "winter of 1850 and '51" to Dr. Cone in a very *limited* manner. Now, my communications were to five individuals *disconnected* with my office—to Dr. Smith, in Sept., 1850, to Dr. Tracy on the 1st of October following, to Drs. Flagg and Eastham on the 12th of Dec. following, and to my legal friend on the same day, by a full and explicit account in writing of the entire operation, and in accordance with a verbal communication to the same effect, as early as August previous. If, therefore, Dr. H. was before me in discovering, I was certainly before him in the matter of publicity.

Dr. Hullihen may be able to show, (or Dr. Cone for him,) for aught

I know, that, previous to his letter to Dr. C., in 1851, he instructed a hundred other dentists *besides* his students, if so, "Why," as has been asked, "has a knowledge of it been kept so long from the profession?" Can Dr. Hullihen make it appear that he instructed any other *dentist* in his operation, *except* his students, prior to his letter to Dr. Cone in 1851, and can he disprove the statements contained in Dr. Scott's letter to Dr. Stearns? If he *can*, it will relieve him very much of what he will *otherwise* be suspected of having done—harbored "professional secrets," for which Dr. Cone professes to have a mortal dislike.

In Dr. Cone's article in the Dec. number of the Recorder, he closes by saying, "I must decline being responsible for Dr. Miller's obtuse mental faculties; but will assure him that the gross piracy and plagiarism, which, it would appear, his own guilty consciousness has forced him publicly to deny before publicly charged on him, shall be most fully discussed in a dental Journal, agreeable to his not very cautiously expressed wish."

This is rather low on the part of Dr. Cone, and so is the article thus threatened. Others will, I have no doubt, judge of both as they deserve. We here leave Dr. Cone, for the present, and direct attention to another individual who has manifested a desire to crowd himself into notice in this controversy. The charges of "piracy, plagiarism," &c., will be disposed of by testimony to be introduced hereafter.

In the Boston Med. and Surg. Journal for Dec. 1st, '52, the following article appeared over the signature of E. B. Gardette—

"DR. HULLIHEN'S OPERATION FOR FILLING TEETH OVER EXPOSED NERVES.—*To the Editor of the Boston Medical and Surgical Journal:* Sir,—My attention has just been called to an article in your Journal for Oct. 20th, over the signature of S P. Miller, and dated Worcester, Oct. 4th, in which the writer has given an account of operations performed by him (filling teeth over exposed nerves,) as far back as June, 1850. These operations are communicated by the writer referred to, as originating with himself, and as having been mentioned to a few friends, (he does not say who these friends were, nor at what date he made known his supposed discovery to them,) after he had successfully treated 'about forty cases embracing the different classes of teeth,' &c.* do not know Mr. or Dr. Miller professionally or personally, but his communication surprises me none the less, being aware that he was present at the meeting of the American Society of Dental Surgeons, in Newport, R. I., last August, and there heard the full report of Dr. Hullihen's operation for filling teeth over exposed nerves, made by Dr.

* These "few friends" were designated in the *same* Journal Nov. 17th—a fortnight previous to the publication of the writer's article.

Cone, Professor of Mechanical Dentistry in the Baltimore College of Dental Surgery, Baltimore."

That I am not known to the writer may be of as much consequence to him as any one. I was not present, therefore did not hear Dr. Cone's "full report."

"I am also aware that the said S. P. Miller, at that time made many inquiries of Dr. Hullihen respecting the said operation, without for a moment assuming to have been its originator."

Who gave the writer his information? How "many inquiries" did I make, and what were they? One, and that as before stated. I did assume to have been the "originator" of all that I have published, as is plainly shown by the following extract from the Dental Recorder, which the writer copies.—

"The editor of the New York Dental Recorder, it is true, states in the August number of that journal, that Dr. Miller of Worcester, mentioned that, for two years past, he had been practicing this operation with almost uniform success, *without the slightest knowledge or suspicion that any member of the profession had ever practiced in the same manner.*"

Does not the above, which is true, indicate "that I assumed to have been the originator?"

"The same editor adds"—"the only difference being that Dr. Miller passes the drill *beneath* the alveoli border, whereas Dr. Hullihen passes the drill through the gum and alveoli."

Better for the writer had he not introduced this passage, as it makes him contradict himself. However, as he must say something, it may be as well as anything. In the first place, he says, I did not assume "to have been its originator," and then quotes the editor of the Recorder to prove that I did.

"Without dwelling upon the material difference between the two modes—their different object and tendency, (that claimed for Dr. Miller, by the editor, being as old as the time of Joseph Fox, and especially as S. P. Miller in his *present* communication makes no difference in the eventual progress of his experiments, I must protest against the entire neglect on the part of Mr. Miller to mention the fact in his publication that he heard the full report of Dr. Hullihen's operation from Dr. Cone.)"

Here is another specimen of the same sort of reasoning—a truly logical sentence. The writer declares that the "two modes" are entirely different in their "*object and tendency*"—that my operation "is as old as the time of Joseph Fox"—being the same thing—and of course wholly different from Dr. Hullihen's. In the same sentence, after protesting "the material difference between the two modes—their different

object and tendency"—after protesting my operation to be as "old as the time of Joseph Fox," he has *one* more "protest" to offer, and what is it? Why, he protests "against the entire neglect of Mr. Miller to mention the fact in his publication, that he heard the full report of Dr. Hullihen's operation in August last from Dr. Cone," which he did *not* hear. He protests against the entire neglect on my part to mention and assert that Dr. Hullihen's operation is the *same* as my own, after he has positively declared the "two modes" to be wholly and entirely different in both their "object and tendency."

I beg the particular attention of the reader to the statements of the writer in which he charges, in substance, that my operation is the same as that of Joseph Fox—that its "object and tendency" are the *same as his*—that Dr. Hullihen's operation is *different* from mine—has a "*different object and tendency*," &c., and then to his "protest" against me for omitting to mention in my publication that I "heard the full report of Dr. Hullihen's operation in August last from Dr. Cone,"—for omitting to associate his operation with mine, which he (Dr. Gardette) asserts is entirely different, and has a "*different object and tendency*." Comment from me, on statements like these, is wholly unnecessary. I submit them to the judgment of the reader. Again, he says:

"For if he went to Newport without the slightest knowledge that any member of the profession had ever practised in the same manner, he certainly was informed of the fact on the subsequent 4th of October, when he wrote (dated,) his communication for your Journal. He knew, too, that Dr. Hullihen had been performing the operation for the last seven years, and had communicated his process to Dr. Cone more than three years previous to that date, (from the winter of 1850 and '51, to October 4th, 1852, about one year and nine months,) and yet, in the face of that knowledge, Mr. Miller publishes his article in the Boston Medical and Surgical Journal, without referring to either of these facts."

What facts? *One* is that I knew another member had been practicing the *same operation*, which this forcible reasoner asserts has no relation or connection, whatever, with my operation—there being a "*material difference* between the two modes—their different object and tendency," &c. Another is, that I "knew, too, that Dr. Hullihen had been performing his operation *for the last seven years*."

And still another, which is that Dr. Hullihen communicated his process to Dr. Cone more than three years previous to that date, (Oct. 4th, 1852,) which Dr. C. had *previously denied* in his report, by saying *expressly*, that Dr. Hullihen *refused* in 1848 to inform him as to the *nature*

of his experiments, but "during the winter of 1850 and '51, expressed to him by letter," &c., what they were. If the denial is not *positive*, the inference is *conclusive*. The writer continues:

"Under such circumstances, the communication of your correspondent, 'S. P. Miller,' has the aspect, and I think will be regarded by the profession as an unjustifiable attempt on his part to claim the discovery of what does not belong to him. In the Philadelphia Medical Examiner for the month of October, you may see (and I respectfully invite your attention to it,) my own brief report of Dr. Hullihen's operation for filling teeth over exposed nerves, which, apart from a sense of common justice to one who has conferred so great a benefit upon his profession and the community, demands of me to notice any attempt to violate, in his case, the holy precept which teaches us (not to do as *I* am doing, but) 'to render unto Cæsar the things that are Cæsar's.'

"I am, respectfully, your obedient servant.

E. B. GARDETTE.

"Walnut-st., Phila., Nov. 3rd, 1852."

There is little more that need be said of one guilty of such gross misrepresentations and falsehoods, except that, from some of his statements, he appears to have been misled and duped by some one who wished to use him in furtherance of a specific object. The slanderous character of his whole production, and the imbecility and inconsistency of his logic were such as to cause his paper to be rejected and returned to him, but, after a *second* trial, he succeeded in getting it into a respectable medical Journal. This was the only circumstance that gave it any importance; but not even this was of sufficient consequence to entitle it to a reply through the same medium. As every poison has its antidote, so had this; and had the author been in Worcester, where his article was republished by some half dozen individuals, who have been at no little trouble to republish all the scandal they could procure, (but at less trouble to *cheat* the printer out of his pay,) where he could have witnessed the effect of his venom, he would have been severely rebuked, as they have, by hundreds who knew that I had practised my operation successfully more than two years before anything was publicly known of Dr. Hullihen.

TO BE CONTINUED.

For the Recorder.

THE NEW HAMPSHIRE DENTAL SOCIETY.

MR. EDITOR.—A convention of the Dentists of New Hampshire was

held at Concord, June 1st, 1853, (an adjourned meeting from last June) for the formation of a dental association.

A Society was formed calling itself the *New Hampshire Dental Society*. The following officers were chosen;—

M. T. Willard, M. D., Concord, President; Abraham Robertson, D. D. S., Manchester, Vice President; L. F. Locke, M. D., Nashua, Secretary; J. W. Little, M. D., Concord, Treasurer; Dr. A. Severance, Great Falls, Auditor.

The secretary was instructed to forward to the dental journals an abstract of the Constitution and By-Laws which were adopted. But not to trouble you or your readers with a score of chapters, articles and sections; on officers, their duties, &c. &c., I will only transcribe (what may not be without interest to some).

TERMS OF MEMBERSHIP.—“Any person desirous of becoming a member of this society, must present evidence to the examining committee that he is a graduate of some regularly constituted *Dental College*, or is a graduate of some Medical College, or been in the practice of dentistry two full years subsequent to receiving his M. D.; or has studied with some respectable or well informed dentist at least two years, and been in practice two full years subsequent to such studentship; or that he has been in the actual practice of dentistry five full years; and that he sustains a good moral character and is at least twenty one years of age. Then shall the said committee examine the applicant in reference to his qualifications (unless he be a graduate of a Dental College, when he shall be exempt from such examination) and if they find him properly qualified they shall so report to the society, which shall then proceed to ballot for such applicant.” * * * * *

L. F. LOCKE, Secretary.

INSERTING TEETH ON PLATE OVER THE REMAINING FANGS.

DR. C. C: ALLEN.—*Dear Sir*,—I wish to ask your opinion of the practice of inserting teeth, on gold plates, over the fangs, and at the same time to state my own experience.

About a year since, a lady, one of the most wealthy and most respectable in our city, came into my office, and stated that she had just called upon her old family dentist and asked him if he could put in her teeth over the roots. The *Doctor* replied, without making any examination whatever, “we dont do any half-way work here.” The answer was so short, that without further remark she immediately left, came to our

office and asked the same question, at the same time said she never should have them inserted unless it could be done over the roots.

I examined her mouth, tried to convince her that it was much better to have them removed, and persuade her to submit to the operation, but to no purpose. The roots were all good. I then put into the old crown a preparation to destroy the nerves, and directed her to call again. She came two days after and I found that the nerves had been destroyed with very little pain. I then filed away the roots, as I would for pivot teeth, extracted the remaining pulps, and filled the fangs to their extremities. The impression was then taken, and seven teeth put in over the roots as above prepared; the upper ends of the teeth striking fair against the ends of the fangs. This was of course, a clasp plate.

Now, to this day, I never saw nor heard of a better or more serviceable plate of artificial teeth, and you can imagine how well the lady is pleased, and what effect her praise has had upon my business. Since that time I have inserted three other plates for her friends, and all alike have been successful; though I did not fail to point out to them what I supposed to be the danger and the disadvantage of such a course of practice. This method seems to preserve the gums and keep the face and lips in their natural position so perfectly, that I am beginning to be very much in favor of the practice, when the roots are healthy and can be well plused. No one will doubt, but that teeth so inserted are more serviceable, but for what length of time, I am not yet prepared to say; probably in most cases as long as the teeth remain strong enough to sustain the clasps.

Now Sir, I am aware that I stand alone in this city, but I am prepared so to stand, until some older and more experienced dentists than myself convince me that I am mistaken. Will some of our "Fathers" give us their experience?

D. C. E.

Albany, June, 1853.

REMARKS UPON THE ABOVE.

Formerly it was the common practice among good dentists to extract indiscriminately all the fangs before inserting artificial teeth on gold plate; but the filling of fangs has since been introduced, and so generally practiced, that it is now thought to be better to adopt the plan described by our correspondent.

The teeth can be inserted immediately without waiting for the gums to heal, and if a fang should occasionally inflame, by using the proper

means, it will generally terminate in resolution ; but if it should go on to suppuration, this will not be a sufficient cause for its removal, as after the acute stage of the inflammation has passed, the ulcer will often heal and give no further trouble. Even admitting that the worst may happen, and that a small fistulous opening remains in the gum, this is not generally regarded as a very great evil, but is generally submitted to in preference to the operation of extraction.

In cases where all the fangs over which we wish to insert artificial crowns are healthy and can be well filled we allow them to remain, and believe this is now the generally received doctrine among dentists of the highest authority.

THE LATEST DENTAL PATENT.

We learn that a patent was issued April 26th, to A. J. Watts, of Utica, N. Y., for "preparing gold" for filling teeth. This is a new preparation of sponge gold, prepared by a galvanic process, and it is thought by those who have used it that it will soon supersede the use of gold foil altogether.

The article is prepared in sheets, of a spongy consistence and fibrous texture, and so firmly does it weld together when packed in the tooth that it may afterwards be plated or drawn into wire. We have not yet seen or used the article, but such is the account of it which comes to us from one of the most respectable dentists in Utica. It is said that the inventor, or discoverer, has disposed of his right for thirty thousand dollars. If the new article is as good as is represented, it is the first invention we ever heard, or read of, which should tempt a liberal minded dentist to procure a patent, if it is not, we trust the speculators engaged in it will reap the usual profits and honors accruing from dental patents. We shall know more of it soon, and will apprise our readers in time to purchase *rights* to use it.

A CASE OF GROSS CARELESSNESS.

It has been said by some that carelessness is a *necessary evil*; that success in any one pursuit for a great length of time necessarily predisposes the mind to calculate on a continuance of good luck and induces it to relax that vigilance and constant watchfulness which is necessary to avoid carelessness.

In the March number of the Recorder we published an article upon the necessity of great care in examining teeth before pronouncing them free from decay; and since that time a case has occurred within our own knowledge illustrating the hasty and careless examinations there condemned, perpetrated, too, by a regular subscriber of the Dental Recorder.

A gentleman, who was a stranger to us, called with pain in a superior bicuspid tooth, from which the pulp had been taken as he said, and the fang filled. He had before consulted his dentist respecting this tooth, and while there, had requested that his other teeth might be examined and such operations performed as they might need. The dentist examined them throughout the mouth and pronounced them in good condition. The pain continuing in the bicuspid the gentleman sought his dentist again the following day and learned that he had gone in the country for a few days. He then came to us for relief.

Upon examining the aching tooth, we could discover no signs of the pulp having been extirpated. The tooth was firm in the jaw, of a good color, had but a small gold filling in it and was but slightly sore in the socket, and the gum around it healthy, notwithstanding the pain had continued several days. Under these circumstances we thought it proper to look for the cause of the pain elsewhere. Upon examining the back teeth, a chalky opacity was discovered on the anterior surface of the wisdom tooth in close contact with the second molar, and with a cutting instrument a large carious cavity was soon laid open. Upon removing the softened dentine the pulp was found to be slightly exposed, and on touching it the pain was greatly increased in the bicuspid tooth. Here then was the whole cause of the pain, which had been overlooked by the dentist, though he had been expressly charged to examine all the teeth and search for disease which might exist in any of them. The wisdom tooth was extracted which gave immediate relief to the bicuspid.

This case was interesting also, as illustrating the sympathy which often exists between a diseased wisdom tooth and those in the front part of the mouth, cases which so often perplex young practitioners and sometimes cause sound teeth to be sacrificed. The wisdom tooth had not ached in the least degree and no suspicion existed in the mind of the gentleman that it was decayed. We have met with several cases of this kind, though there is not often such a complete absence of pain in the decayed tooth. Usually there is more or less pain and grumbling in all the teeth on that side of the jaw, constituting what is usually deno-

minated "ague in the face." The careful and judicious practitioner will have no difficulty in finding out the secret in cases of this kind, only the hasty and careless dentist can be guilty of making such inexcusable blunders.

THE DENTAL EXPOSITOR.

The third number of this semi-annual publication, for May, edited and published by S. Brown, M. D., has made its appearance and contains the commencement of the editor's "Treatise on Mechanical Dentistry" illustrated by numerous cuts. This article, originally published in the American Journal of Dental Science, has been thoroughly revised and contains many additions, describing all the important inventions and improvements which have since been made in the mechanical department of our art. To those who are not well "posted" in dental mechanics this publication will be a great assistance, as the writer intends critically and minutely to describe every step in the process of constructing artificial teeth, from the preparation of the mouth to the manufacturing of single and block teeth, mounting them, and finishing the plates.

There are many dentists now in practice who will never cease to be thankful to Dr. Brown for writing and publishing, with so much liberality, this invaluable treatise at a time when dental secrets were much more common than they are at present, and when many had commenced practice without that necessary instruction which alone could prepare them to work to advantage; but which this article furnished them, as fully as any knowledge could be imparted, short of personal instruction under the eye of a competent teacher. Surely all such dentists can well afford now to subscribe to the Dental Expositor and receive a new installment of information from this enlarged and improved edition which will enable them to take another step in advance towards perfection in mechanical dentistry.

For one dollar enclosed to us, or directed to the editor, Dr. S. Brown, No. 307 Broadway, the first six numbers will be promptly forwarded to any subscriber.

MISCELLANIA.

THUNDER AND LIGHTING OPERATION.—The News Letter gives the following anecdote as related by Dr. Flagg of Philadelphia.

In his early professional life he happened to be at the Catskills, enjoying the mountain air, where he found a young Irishman complaining of the tooth ache, and offered his services to extract it. While preparing for the operation the sky was apparently cloudless; but when ready to apply the turnkey the heavens became suddenly overcast, as is not unusual in those elevated situations, and just as the instrument was turned in the mouth a sudden flash of lightning seemed to play upon the polished instrument and shock both patient and operator, at the same time shattering a tree near by. The thunder was terrific, but the tooth had been extracted, and, dropping the instrument, the Doctor exclaimed, "Heavens, what lightning." "Lightning" exclaimed the Irishman, "and sure I thought 'twas a part of the operation."

ABSENCE OF MIND.—A lady for whom we constructed an upper set of teeth, is in the practice of removing them every night and placing them in a bowl of water. One night after she had retired to bed she found them in her mouth, though she recollects filling the bowl as usual, and had an indistinct remembrance of putting something in it. Judge of her surprise, when she found, in the morning, that, instead of the teeth, what she had first placed in the water which had remained there all night, was her large cameo bosom pin.

CONCH DIVING.—A few months since, Capt. Hoyt, then the Agent for the Underwriters, at Key West, was sailing down to the "light ship," some ten miles distant, the sea became very rough and he became very sick. While leaning over the boat side and seeking open-mouth relief, he ejected into the "deep blue sea" a mouthful of artificial teeth. The loss was a very serious one, affecting his beauty and mastication; and he sought an expert *diver* on his return, explained, as near as he could, the distance and direction to the place of the accident, and offered him a reward of two doubloons to find the *teeth*. The *conch-diver* put out in his sail boat, spent a day in submarine explorations in 30 feet water, and returned with the *teeth* in his "breeches pocket."

BLOCK MAKING.—Mr. E. G. Waters, 94 Canal street, and Mr. Augustus W. Meader, No. 80 Leonard street, have both sent us their cards, informing us that they are prepared, on short notice, to manufacture block teeth for the profession. Terms 50 cents per tooth.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of
SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. VII.

JULY, 1853.

No. X.

RHIZODONTROPY—NEURHOEMAXIS.

Review of Drs. Cone, Gardette, and John R. McCurdy, editor of the Dental News Letter. By S. P. MILLER, Worcester, Mass.

(Continued from page 230.)

There remains one other individual to be noticed in this discussion, viz., J. R. McCurdy, Editor of the Dental News Letter. In the January number in speaking of my article in the Boston Med. and Surg. Journal he says: "This has called forth some replies from the friends of Dr. Hullihen, on the ground that Miller is disposed to appropriate to himself a discovery which of right belongs to another, and more especially so, as Dr. M. was present at the meeting of the Am. Society, held at Newport, last August, at which meeting the essay of Dr. Cone was read, and that he was made aware of the fact that Dr. H. had been practicing on that method since 1845. It appears from the statements of Dr. Hullihen's friends and himself, also, that his discovery was *accidental*—that, although it was made in "1845," and he has been "practicing on that method since" that time, he did not know it till some fifteen months afterward during the year "1846." "And they say further, that if Dr. M. had been following the same practice, he should have made it known then and there." The editor says for himself, "had Dr. Miller stated before the society what he has since published, this discussion, and some asperity of feeling would in all probability have been avoided."

To this I replied in the April number of his paper, in which I assured him that I was *not* present at the meeting, and restated the cause of my detention. I also informed him that I "did make known to several members, after the meeting had dissolved, my experience with an operation which I had practiced successfully over two years, and that I was not aware that any other member had been pursuing a similar practice previous to my arrival at Newport." And besides, Dr. Bridges has informed me that Mr. McCurdy called on him and had a long conversation

on the subject, and that he (Dr. B.) gave him the facts in the case—that he assured him of the correctness of my statements, and yet, in the April number Mr. McCurdy comes out and says : "Now, when we wrote the article, there was not the shadow of doubt that Dr. Miller was in the Ocean House during a portion of the last day's session of the Society (August 4th) and although we noticed in an article of his, published in the Boston Med. and Surg. Journal, the assertion that he did not arrive at Newport until after the adjournment of the Society, still our conviction to the contrary was not and is not now shaken ; and his renewed assertion of the same in the above communication has led us to make some enquiries, that our statement to the contrary may not rest on our own responsibility ; and we think that we are now warranted in making the assertion that Dr. Miller *was* in Newport, and at the Ocean House (where the Society met) but whether present at the last afternoon's session we are not prepared to state—but this is immaterial. All we wish to show is, that Dr. Miller could have been present during at least the latter part of the afternoon's session if he had so wished.

This statement *is material*, in that he makes use of it to impeach my veracity. He throws out the insinuation that I arrived at the Ocean House in the afternoon of the 4th, and skulked about the premises without attending the session of the Society, or making my appearance until after it had adjourned. Passing over the personal assurance given him by Dr. Bridges to the contrary, and before the issue of his April No , in order to strengthen his position, he refers to a mistake of Dr. Bridges, reported by Mr. Cone ; also to "the registry of his (my) name on the books of the Ocean House, the proprietor of which states "that he (I) arrived on the 4th, and he *thinks* in the afternoon." He continues : " We can state—and we think Dr. Miller will not deny it, that he knew the substance of Dr. Cone's report, and consequently of Dr. H.'s operation before he left Newport;" (never have, nor do I intend to deny it) " and yet, after his return home, he publishes what he would have his readers understand to be a discovery of his," (and they do both "*understand*" and *know* it to be so,) " omitting, (a singular omission, Doctor,) to make mention of Dr. H. in connection with the *same* operation."

Here, it seems, the friends of Dr. Hullihen do not agree. One contends that there is a " material difference between the two modes—their different object and tendency," &c., while another asserts that they are the "*same operation*." How will you have it, gentlemen, *both ways* ?

Mr. McCurdy shows better sense on this point than his friend, Dr. E. B. Gardette, who has succeeded in acquiring distinction in the *outset* of this controversy, by contending, stoutly, that the "two modes" are *materially different*—different in their "*object and tendency*," and then uttering his *solemn "protest"* against me for not saying they are one and the "same operation," and not rendering "unto Cæsar the things that are Cæsar's;" in other words, for not giving Dr. Hullihen all the honor.

No doubt Mr. McCurdy *does* wish to show that I might have been present at the meeting; that he is very *anxious* to do it, but how far his desires will be gratified will be determined by the letters of Drs. Heywood and Hawes. In dismissing Mr. McCurdy, I only regret that he clings to his misrepresentations with *uncommon tenacity*, rather than acknowledge his error. "But every one to his taste."

Let him *enjoy his luxury*—let him *alone*.

DR. HAWES' LETTER.

"*Providence, April 8th, 1853.*

"DR. MILLER.—*Dear Sir* :—I do recollect your calling here when on your way to Newport last August—I also remember that one of our young men went to show you the nearest way to the boat—and that it was nearly six o'clock when you left the office. My brother says he is not positive whether there was an evening session on the last day of the meeting.

A. B. HAWES."

LETTER FROM DR. HEYWOOD.

"To whom it may concern:—*This may certify*, That I was in the daily attendance on Mrs. Miller, wife of Dr. Seth P. Miller, the first week in August, 1852, and for a number of days before and after that week; and for the three first days of the first week in August, it was thought not proper or desirable for him to leave home. On the fourth her symptoms improved, and he did leave for Newport. There being a direct communication between that place and Worcester two or three times daily, it was thought in case of any unfavorable change, he might return home in a few hours.

B. F. HEYWOOD, M. D.

Worcester, June 9th, 1853."

We now come to the consideration of Dr. Cone's Article in the Feb. No. of your Journal, in fulfillment of his promise made in December. As Dr. Bridges, in his paper in the March No., has given statements and explanations which entirely and completely overthrow what Dr. Cone considered his main reliance, I am saved the trouble of reviewing the *whole* of his elaborate production. I shall, however, touch upon a few points, omitted by Dr. Bridges, and adduce such testimony in support of my position, as will, I trust, be satisfactory to unbiased parties.

I cannot pass, however, without calling attention to Dr. Cone's opening remarks, as they present a specimen of composition, the ungrammatical construction of which is rarely to be met in the English language. After reminding his readers of the "assurance" so pompously expressed in the Dec. No., "that Dr. S. P. Miller should be more fully noticed than what a proper regard for the wishes of the editor of the Boston Med. and Surg. Journal (where the paper was first published,) would permit at that time and place," he goes on to say, "In meeting Dr. Miller's challenge of Nov. 5th and 10th, I shall not permit the introduction of new issues in the debate; and at the same time expressing (?) a determination to award to Dr. Miller *all that is truly his*, not omitting (?) that plainness of language which his bantering altitude seemed so anxiously to court."

On page 121 (Feb. No.) he says: "But Dr. Miller came to Newport for other purposes than enlightening the members of the American Society of Dental Surgeons on any point of practice. He came as 'showman' for the sale of rights to make *continuous gums*."

For this and other scandalous statements which follow, Dr. Cone has rendered himself obnoxious to the law of libel, they being unmitigated falsehoods for which he can show no reasonable excuse. But he is in no danger, for, when obliged to repair a reputation from any injury which *he* has the power to inflict, I shall be lower in the scale of professional skill and morality than I ever hope to be; therefore, he is at liberty to utter falsehoods of the greatest magnitude and on the broadest scale within the scope of his well practiced talent. The "specimens" were taken to Newport at the special request of Drs. Allen and Bridges; nor do I deem it any disparagement either to them or myself that I did so.

He continues: "In company with Dr. Hullihen and other gentlemen, I was informed that Dr. Miller was at Newport with "specimens of this kind of work," and was induced to visit his room, where Dr. Miller had his specimens arranged on a table for examination, and I doubt not the gentlemen who accompanied me, remember well, that after leaving his room, the *shame* I expressed for the disgrace and desecration of the profession by men, claiming to be members, who, with packs on their backs, like the dromedary, rove from city to city, exhibiting the three legged calf, or the two headed goose, and selling the latest dental patent;" but *no* "professional secrets," for they had been disposed of at prices varying from "two" to "five hundred dollars." After such an an-

nouncement, was it to be supposed that he would congregate about him "dromedaries, three legged calves, two headed geese," &c., and with the lion's skin, on, (himself,) march the whole caravan into "the debate?" Dr. Cone seems to have forgotten the fable, in which a certain beast, although clothed with skin of a noble animal, gave unmistakable signs as to his genus, habits, &c.

Was it expected that he would call on "Pirates, Thieves, Plagiarists, and Robbers to help him?" Verily, he seems to be in bad company. "And these gentlemen will also recollect that the subject of my report was named by Dr. Miller on the occasion of that visit to his room." Dr. Cone speaks the *truth*, when he says that the subject of "his report was named" by me on that occasion. Does that look as though I would not have brought my operation before the society if I could have enjoyed an opportunity? Did Dr. Hullihen make me any reply? Did Dr. Cone? No Not a word from any one, that I remember. Under these circumstances, how could I do more than to "name the subject?" Dr. Bridges remembers well that my remark addressed to Dr. Hullihen received no consideration from any one present. After admitting that the subject of his report was named by me, Dr. Cone goes on to say: "if Dr. Miller had intended to have brought this operation before the society, or had he been superseded by my report, would he have let the opportunity of this interview just related, to have escaped, without in some way expressing his intentions of having done so? Or would he not have made his disappointment manifest?" Dr. Cone may think it both expedient and wise to obtrude *his* remarks upon the attention of others, after they have given him *unmistakeable* signs that they do not want to hear them, but it is not so with every one. Dr. Cone quotes from my article in the Boston Med. and Surg. Journal, (Nov. 17,) as follows: "It will be seen on examination of Dr. Hullihen's papers, that my experiments may vary from his, in that he gives no account of amputating the nerve, removing the pulp, nor of having employed the operation in cases where the nerves are not exposed, as detailed in my paper," &c. At the time the article was written, I had in view that class of cases described in my first paper, on the 46th page of the Nov. No. of your Journal. If, however, injustice has been done to Dr. H. in this respect, I stand ready to make the acknowledgment. To Dr. Cone's 4th question, Dr. Hullihen replied as follows: "The indications for performing the operations, are, in all cases, where the nerve has become fairly exposed; particularly so, in the teeth of all young subjects,

and where the *pressure* of a plug will likely provoke inflammation in the nerve by its close proximity to it." Now why, in his last article, did Dr. Cone substitute the word "*presence*" for "*pressure*"? If the sentence, as originally constructed, is ample enough for all the purposes desired, why mutilate and change it? Why not let "well enough alone?" Might not the question be pertinently asked, "*What is this but the boldest*" *forgery* upon his friend Hullihen? But perhaps Dr. H. does not object to the *forgery*, as nothing has publicly appeared to show that he has instituted legal proceedings against the *forgerer*.

In saying that Dr. Miller cannot be permitted "to establish improvements in practice," did Dr. Cone reserve that privilege to himself, *exclusively*? The method of preparing the instruments for performing the operation, and the after treatment with nitrate of silver, as described in my paper, were used by me before Dr. Cone received his instruction by letter during the "winter of 1850 and '51." Whenever pustules arose, they were treated on the same principle as those arising from alveolar abscess. At the time my paper was published, not a new idea, thought or suggestion in regard to the operation, or the "after treatment," had been derived from anything heard of Dr. Hullinen's practice, except his manner of preparing the point of his drill, which I have never followed, my own having been successful in over two hundred cases before I ever heard of his method. I therefore, in the face of every circumstance that can be brought to bear against me from any and every quarter, whatsoever, pronounce the *whole* of Dr. Cone's remarks charging me with having copied his "*ideas*" relative to *any* part of the operation, or the "after treatment," a tissue of *unblushing, unmitigated falsehoods*. Why did not Drs. C. and H. meet me half way in this matter, after I had "named" it, for the purpose of interchanging views and ideas, unless they had determined, beforehand, to enjoy a monopoly? Under the circumstances, which I challenge them to disprove, in the publication of my paper, I was under no obligation to *compliment* Dr. Hullihen, or refer to him in any manner whatsoever, as I was not indebted to him in any way—not even on the ground of *professional courtesy*. Dr. Cone admits for him that I took the first and only opportunity, ever had with him, to introduce the subject under adverse circumstances. I embraced it as the only one which I should have at Newport, as I expected to leave in the five o'clock boat the next morning.

Dr. Cone's charges of "*Piracy, Theft, Plagiarism, Robbery*," &c.,

will be disposed of by introducing the following papers, the first of which consists of "Extracts from the original manuscript containing a description of the new operation in filling teeth over exposed nerves by S. P. Miller, of Worcester, Mass., deposited with N. T. Dow, Esq., No. 30 Court street, Boston, Mass., December 12th, 1850.

COPY.

"Worcester, Oct. 12th, 1850.

"FRIEND Dow.—Pursuant to a conversation held with you in August, I herewith transmit a statement of the mode of treatment *originated* and *employed* by me in preparing teeth to be filled in cases where the excavating process results in an exposure of the nerve. My first trial was on the fifth day of June last past, and the modus operandi as follows: On finding the nerve of a left central incisor tooth, upper jaw exposed, I proceeded with a small sharp excavator to puncture the gum about an eighth of an inch from its margin, cutting through the alveolus to the fang directly opposite its centre. Then, with a drill about the size of a small knitting needle, introduced into the puncture, made an opening to the nerve, which, in this case, being small, was entirely severed by the drill, and the pulp, or excised portion, wholly deprived of sensibility.

The pulp was left in and the tooth filled in the ordinary way. I had occasion to fill other teeth for the same patient on the 1st instant, at which time the tooth, the subject of the *first experiment*, was in a healthy condition, and I was assured that, up to that time, there had been no pain in the tooth, nor soreness, except a little in the gum about the puncture.

Have varied the method of operating, somewhat, by raising the gum so as to make a small flap before introducing the drill, but with no better effect than with the puncture.

Also have removed the pulp and filled the fang to the opening (without obstructing it) with the same result as the first. *Latterly, I have wounded the nerve as little as possible, either with the excavator or drill,* and prefer it, as the operation is less painful, of shorter duration, and the result equally favorable. * * My object is to dispense with the use of arsenic in all cases where it can be done, and the patient will submit—to substitute a *healthy* for a poisoned wound. I have tried the experiment in about forty cases, and on all classes of teeth (mostly single and bicuspid) and have not yet heard of a failure. Have examined a goodly number of cases within a few days after the operation and found that a *reunion* of the nerve had been established."

Yours truly, S. P. MILLER.

"Boston, Nov. 1st, 1852.

"I hereby certify that the foregoing extracts are from an original over the signature of Dr. S. P. Miller, of Worcester, Mass., which original is in my office, No. 30 Court street, Boston, and ever has been since Dec. 12th, 1850, when I received it from him personally. The matter omitted has not the slightest reference to the discoveries, or practice, or theories, or suggestions of any body else.

The whole matter agreeing with the above, and purporting to be wholly original, was fully explained to me by Dr. Miller in August 1850, as appears by a memorandum made by me at the time to that effect.

N. T. Dow."

Was the description of the operation contained in the foregoing manuscript, written before Dr. Cone was born into the household of Hulihen faith, "*pirated*" from his report in 1852—nearly two years afterward?

LETTER FROM DR. EASTHAM.

"Boston, Nov. 1st, 1852.

"I hereby certify that, on the twelfth day of December, eighteen hundred and fifty, I was instructed in "Miller's Operation" for the treatment of exposed dental nerves—that of drilling into the nerve cavity or fang—without having previously destroyed the nerve by any of the methods in common use—by S. P. Miller, of Worcester, Mass.—That he informed me, in the month of August preceding, that he was engaged in a series of observations and experiments upon that subject, the results of which he would communicate to me at a future time.—That his description of the operation above referred to, at the date above mentioned, was the first and only one of which I had any knowledge up to that time.—That as directed by him, I have performed the operation with the most gratifying results."

C. EASTHAM, M. D., Dentist."

LETTER FROM DR. FLAGG.

Boston, Nov. 2d, 1852.

"MY DEAR SIR.—Agreeably to your request, I will briefly state what I recollect of the first communication which you made to me of the operation which you have described and published in the Boston Medical and Surgical Journal, (the number for October 20th.)

Nearly two years ago, in December 1850, I believe, when in conversation with you at my house on the subject of an operation which I had originated and performed with the object of preventing the inflammation and ulceration which too commonly followed when teeth were filled after the nervous and vascular pulp had been destroyed by disease, by instruments or by caustic—viz: the operation of passing a fine drill through the neck, just under the edge of the gum, before filling it; you informed me that you had not only adopted the operation and found it successful, but that you had extended it with a view to obtain a still more desirable result, viz: that of preserving the nervous pulp by puncturing and sometimes dividing it with the drill and thus leave the tooth after filling in a more perfectly normal state. And you gave me an account of your success, in several cases, treated as you have described in the above named Journal. At that time, I considered your object as one of the highest importance in dental surgery, could it be obtained; but I viewed the operation as a delicate and doubtful one, and did not feel inclined to follow your lead, till I should hear from you again on the

subject. About a year ago, perhaps less, you called my attention again to your method of treating exposed dental nerves, and in consequence of repeated and numerous successes, you spoke with a degree of confidence which induced me to adopt the treatment, and the results encourage me to continue it.

Very respectfully, and truly yours,

DR. S. P. MILLER,

Surgeon Dentist, Worcester, Mass.

J. F. FLAGG.

DR. TRACY'S LETTER.

Windsor, Vt. Nov. 3d, 1852.

I hereby certify, that Dr. S. P. Miller, of Worcester, Mass., communicated to me his method of filling teeth over exposed nerves, by drilling into the canal of the tooth, as described in his article upon the subject, contained in the Boston Medical and Surgical Journal of the 20th ult. Early in the autumn of 1850, being in his office one day, (I think the first day of October,) he requested me to examine the case of a patient, a lady, upon whose teeth he had some time previously performed the operation. The lady stated that it had caused her no trouble, and the tooth had retained its natural healthy appearance. Subsequently to this, I had repeated conversations with him upon the subject, and examined personally several patients' upon whose teeth he had performed the operation, and in some instances found that there had been a bony deposit, closing up that part of the cavity made by the drill, which was nearest to the nerve, where the vitality of the tooth is always more active than in the parts nearer the surface.

STEPHEN TRACY, M. D.

LETTER FROM DR. SMITH.

Brooklyn, Nov. 16th, 1852.

FRIEND MILLER.—In September, 1850, you communicated to me by letter, that you had been for some time practicing a new method of treating exposed dental nerves with great success, and desired me to make trial of it as opportunities offered, and thereby add my experience to yours in testing its practicability. As then described the operation consisted in drilling a small hole through the fang to the nerve, just above the edge of the gum, after which the decayed portion of the tooth was to be treated, and the filling proceeded with as though the nerve had not been exposed. The idea being new to me, it seemed that the operation must be painful, attended with considerable difficulty, and followed by severe inflammation. I therefore did not venture to try it until after I saw it performed by you at your office in February last, since which time I have adopted it in my practice without a failure. Previous to witnessing the operation by you, I mentioned the matter to some of the most eminent dentists in New York, also during the past winter to several in Boston, and, without an exception, it was unfavorably received and regarded as an unsafe practice.

Respectfully Yours,

To Dr. S. P. MILLER, Worcester, Mass.

J. W. SMITH.

LETTER FROM DR. BRIDGES.

Brooklyn, Nov. 2d, 1852.

DR. S. P. MILLER.—*My Dear Sir:*—In December, 1850, Dr. J. W. Smith communicated to me your novel operations on the dental nerves. During the year 1851 I communicated with Dr. Arms of N. J. and Dr. Allen of Ohio on the subject, and described your practice to them. In the early part of August, at the meeting of the A. S. of D. S. in Philadelphia, while on a discussion upon killing dental nerves, I alluded to the practice of a friend, (meaning yourself,) which, though badly uttered and worse reported, could not be mistaken for any then known practice. I had no doubt at the time, nor have I now, that the novel practice, minutely described by you in the Boston Medical Journal, was perfectly original with yourself.

Yours truly and sincerely,

MARTIN K. BRIDGES, 109 Henry-street.

LETTER FROM DR. STEARNS.

I hereby certify that I was instructed in "Miller's Operation" preparatory to filling teeth over exposed nerves, by the discoverer, Dr. S. P. Miller, of Worcester, Mass., in March 1852, previous to which time I had never heard the slightest intimation of such an operation. Since then I have performed it myself according to his directions with the most satisfactory results. In June, 1848, I removed from Boston to Pittsburgh, Pa. During the nearly three years of my residence there I very often heard the name and reputation of Dr. Hullihen, of Wheeling, Va., referred to by those who had been his patients, in the terms of the highest consideration, but never heard the remotest allusion to any operation for either dividing or puncturing the nerve. At the time when, as above stated, I first became aware of this operation, I was so greatly impressed with its importance to the usefulness of the profession, the comfort of the public, and the reputation of its fortunate discoverer, that I strongly and repeatedly urged Dr. Miller to give it immediate publicity. To this he replied that he had been delaying it until the results of the operation, not only in his own practice, but in that of those to whom he had imparted it, should be so full, perfect, and satisfactory, as to command respectful attention—that he had no fear of any one else claiming it, and that he should be fully prepared to lay it before the next meeting of the American Dental Society. It will be obvious to every candid mind that the conduct of Dr. Miller was not like that of one who commits a piracy, for such an one would have seized the earliest opportunity to forestall public opinion, and associate his own name with the operation in advance of the real discoverer.

GEORGE O. STEARNS.

Worcester, Mass. Nov. 1st, 1852.

Such is the testimony herewith offered to refute the slanderous charges of my assailants, and if it does not do it successfully, I shall have little else to offer on that point. As to the respectability of the witnesses,

they need the testimony of *no one* to exalt them. They are men of distinction in their respective professions—*The world knows them.*

There remain two other paragraphs in Dr. Cone's last article to be noticed. He says: "Dr. Miller in his paper last named, makes reference to other methods of practice in the treatment of exposed nerves in a tone of comparison, which, in my opinion, is alike calculated to convey an incorrect impression relative to this operation, and lead to abuse of its practice.

That a man who has had more failures than any half dozen others who have adopted the practice who broke two drills in his ninth and tenth operations, neither of which could he "dislodge"—whose reported cases have had the effect to discourage other members from engaging in the practice, should have put forth *such* a statement is not a little amusing. Nor is it surprising that one of the editors of the March number of the Recorder says, "so far as we have heard an opinion expressed this operation is not generally received with favor," if Dr. Cone's first eleven cases are to be considered an average of success.

But there are *thirty nine* more to come, not yet reported, which are said to be "more successful than those already published," therefore we may look for something tolerable as Dr. Cone has had time to "establish improvements in practice" from the suggestions of others. In nearly four hundred operations I have broken but *two drills*, one of which was "dislodged" at the time, and the other came out shortly after.

Nor have I been called upon to extract but two teeth out of the whole number. In cases where the nerves were destroyed with arsenic, the loss has been much greater. Dr. Cone's conclusion is as follows: "While I shall resist any attack of Dr. Miller on the claims of Dr. Hullihen, relative to this operation, deemed of sufficient importance to demand notice; neither my philanthropy or charity to Dr. Miller, will permit me to be drawn into a controversy, the purposes of which may be to contribute to the "*trafficing spirit of trade, or be made subservient to personal notoriety for the attainment of pecuniary ends.*" Although these remarks excite nothing but the feeling of *pity* for the man who had the vanity to make them, yet, they have a significant meaning, as they show, conclusively, *who* has charge of Dr. Hullihen's "*claims, operation, and all,*" not without his *consent*, however, as he has fully endorsed Dr. Cone's course of conduct by his silence. If it be said that I have dealt too severely with Dr. Hullihen, inasmuch as he has made no public appearance, let me ask who is responsible for the artics of the

puppet upon the stage, the puppet itself; or the one who remains behind the curtain and pulls the wire? A principal is responsible for the conduct of his deputies whom he appoints and employs; therefore, as Dr. Hullihen has nowhere repudiated any of the injudicious acts of Dr. Cone, but allowed him, from time to time, to indulge in his misrepresentations, without rebuke, he is to be considered as having given his consent to, if he has not *instigated* the *whole course of proceedings*; and to be held *equally responsible* as though he had shown himself in the open field. The evidence is conclusive, that he has chosen Dr. Cone for his *armor-bearer*—and I shall treat the case accordingly. I have already extended this paper to a much greater length than I intended in the beginning but I have not yet done with either Dr. Cone or Dr. Hullihen. It is remembered that, on one occasion, Dr. Cone “expressed shame,” at the sight of some specimens of mechanical dentistry. Is not mechanical dentistry an important branch of the profession? Were not some instruments for performing a certain operation, exhibited in the afternoon previous to his seeing the “specimens of this kind of work?” and did it not require mechanical skill to construct those instruments? Did Dr. Cone “express shame” on *that* occasion, or had he not enough for but *one* exhibition? Is not Dr. Cone an *ex-professor of mechanical dentistry*? Why, then, should he entertain such contempt, and “express shame” for the exhibition of any specimen of skill pertaining to *that* branch of the profession of which he was but recently a demonstrator? One branch is dependent upon another, and, to my mind, if it be proper to hold our conventions, at all, for mutual instruction, it is as proper to show improvements in mechanical as surgical dentistry, and no more derogatory to the character of the profession to impart instruction by exhibitions and practical illustrations, than to stand up and talk, theorize, and read a report of interminable length having but one idea, and that, homeopathically speaking, carried to the fifteenth dilution, or to an extent to render it necessary for the audience to choke the author off before he has half done. Dr. Cone evinces a strong disrelish for “professional secrets,” but, when he can deny, and satisfy the profession of the *truth* of his denial, that he practiced “Hullihen’s Operation” in the Dental Infirmary connected with the Baltimore College of Dental Surgery, *unknown to the professors or students*, during the *last term* of his connection with that institution—when he can deny and show the *truth* of his denial, that when patients called at the Infirmary requiring that operation, if any of the students were present, he made a shift and chang-

ed his appointments, and that *so frequently* as to excite suspicion among *some* of them that something was going on *out of the ordinary course*—and when he can deny and prove the *truth* of his denial, that Dr. Hullihen trafficed his “professional secrets” in the market for the “*attainment of pecuniary ends,*” he may *then* with some share of consistency undertake to prove that the “*attainments and eminence of Dr. Hullihen*” and himself “*forbid the probability of*” their “*harboring professional secrets.*”

When he can *refute* the statement of Dr. Scott, over his own signature, that he paid Dr. Hullihen “two hundred dollars” for a “*professional secret*” for articulating and antagonizing teeth—when he can set aside the testimony of Dr. Stearns, who, during the three years of his practice in Pittsburgh, within seventy miles of Dr. H. often heard of the *same “secret,”* but was unable to procure it “*without money,*” the profession, I have no doubt, will listen attentively to his evidence.

I now direct attention, for a moment, particularly to Dr. Hullihen, who, although he has made no *public* exhibition of himself, appears not to have been idle, but an *efficient director* of the performance behind the drapery—to have put forward his friend Cone and others to do the work of the open field, while he has given orders from the camp, and assisted in carrying on the warfare by *clandestine* operations. He has been able, through correspondence, to obtain the co-operation of a few individuals in Worcester, who were glad of an opportunity to confederate with him for the purpose of doing, as they say, “*justice to the profession at large.*” They, however, are of little consequence as their *motives and desires*, (for giving “*aid and comfort*” to a stranger, who has no interest in them, whatever, except to promote his own selfish ends,) are fully understood and appreciated by the community in which they live. With this community, I leave them. I am happy to say, in this connection, that Drs. Snow and Moules have had no hand in the dirty work. Doubtless Dr. Hullihen considered that any testimony which he could obtain from the field of my labors—the place of my home, would render his success in “*showing me up*” *certain*, and have the effect to crush me at once in the estimation of the profession generally. With a view to make sure his purpose, he *pretends* that I *stole* my information from two men from Worcester, (one of them a blacksmith,) on whom he claims to have performed his operation some time ago. At *his instigation* the men have been *searched for and found*, but neither of them ever heard of Dr. Hullihen or his operation until they were inquired of by *his deputies.*

Of this fact I have their confessions before two responsible witnesses. What other schemes are being concocted with a view to effect his object are of little interest, as I do not shrink from the most rigid examination—as I am in *no way* his *debtor*. I did not commence this controversy, nor do I wish to continue it; but if my assailants choose so to do, I *must* and *shall* use such weapons for my defence as they have put into my hands.

The only apology offered for the length of this paper is that neither of the subjects of the review were of sufficient consequence to demand a separate article, therefore, for *economy* and *convenience* they have been grouped together.

REMOVAL OF FANGS, AND INSERTING PLATE TEETH.

BY J. S. CLARK, D. S. S., NEW ORLEANS, LA.

To be a good follower, or successful practitioner, according to well ascertained principles, seems to be of far greater importance to the dental surgeon, than the fame of a discoverer. To me at least, the first is of sufficient importance to claim *my* whole attention, and I trust the day will never come, when we shall so surround ourselves with so many new and brilliant improvements, that we shall forget that a HUNTER, a KOEKER, and a HAYDEN lived, toiled, and died, leaving rich legacies to our noble profession.

I hold it as a sacred duty to cherish their memories, and imitate their devotion. From the practice and the writings of such pioneers, we draw what we call correct rules of practice. Rules of well demonstrated utility. But our profession is not called upon to stop where they stopped, to close our eyes with fear when they doubted, and blindly to worship their operations as *the practice*. Shame on us, if we starting where they left off (as to principles,) make no advance.

Suppose we find them wrong in some points, shall we set them down as fools? Shall we say, that because a "BELL" denied the vitality of dentine, therefore, Bell is no authority? For one, I look up to them. I love their examples, and cherish their memories. I have made these few remarks to establish my position as it regards the popular *ipse dixit* of the profession. I differ from them in regard to the operation named at the head of this article. But it is an honest difference of opinion, and I wish merely to state a few facts and reasons for the difference.

It is well known that both in the writings and practice of the profession, the entire removal of fangs, and even scattering teeth is advised before inserting artificial pieces, and the contrary practice universally deprecated, so far as I am informed as to the public opinion of the profession.

Such being the case, I feel almost sure that in the next ten lines of this article, I shall be set down in the minds of some of my worthy brethren, for the time at least, as almost outside the pale of that profession I love, and whose honor I have pledged the labor of a life to sustain untarnished.

But to proceed. I have been, and am practically, theoretically, and conscientiously, in favor of setting teeth over fangs or roots of decayed teeth.

Do not be startled dear reader, and say hard things, but as you have read something that sounds as ominous to your ears, as a sentence of expulsion from a high and noble profession, let me ask two things as a matter of right. First, that you read carefully my defence, and secondly, that you suspend your judgment until you have put in twenty artificial pieces on plate keeping in mind my article. Depend upon it, you will be with me despite your legitimate prejudices. To be bold, I expect to convince you. One word before proceeding. I hold as sacredly as the truths my mother first taught me, *That no dentist has a right to swerve, for any cause, whatever, from what he considers the best interests of his patients. That they will not submit to this and that operation is no part of an argument, why he should vary his operations in the least.*

I have saved a dear sister, for ten years, the fangs of the incisors cuspidati, and two bicuspides, as a solid foundation for mastication with the alveolar process, and muscles of the face retained in their normal condition and use.

All my patients are as thoroughly my brothers or sisters, and what I dare not do for the latter, I dare not do for the first named. But to facts. The alveolar process has a use beyond the mere investment of the fangs of the teeth. Over this process is drawn another investment arranged with muscles, giving beauty and symmetry to the "face divine." Remove from this process the teeth, and it is absorbed, the muscles of the face are contracted or thrown out of use, and the youthful smile that was treasured up in the hearts of the happy mother, or husband, becomes a thing "dwelling greenly in their memories" only, for it no longer plays on the loved one's face. Disease has been there, and the

dentist has been there, and between the two has stood, that shrouded monitor before his time to tell of the first fruits of mortality

But here comes my patient. Stay brother dentist, and let us consult in the case, a word as to who she is. In that reception room is a daughter of the "sunny south." At home she is surrounded not only by all that wealth can procure, but she is the only child that gladdened the heart of that angel mother. But now, as that old man totters down the hill of life, he sees in his child the perfect youthful image of that lost one, the companion of his youth, and she lives again. She has also other friends. All love her. But there is one who in a few months will lead her to the altar, the cynosure of a hundred hearts.

But I will call her in. See! nature formed her beautiful, but those rosy lips disclose not pearls beneath. Let us examine. In the lower jaw she has well developed incisors, cuspidati, and bicuspidates. The first molar is gone, the second is a pretty good tooth. The dens sapientiae are just coming through, and have room to develop well. Above, the molars are in about the same condition. But the incisors, cuspidati, and bicuspidates, have no crowns, that are susceptible of being filled, with the least promise of success or use. What shall be done?

See! That old father has her likeness in his hand, and as he looks at those classic features, those thin lips, and aquiline nose, he sighs to think that this is the last time that the original will resemble the picture, for he has brought her to have those ten upper teeth, front of the molars extracted, for he has been told by the physician, and all the dentists who have operated for her, that "*they must come out*," that there is no alternative. But then she can have such nice artificial ones ("*and the dentist can make them so easily*"). "*Her aunt wears them, her cousins wear them*," and if their faces are sharp, and the shape of the nose has lost that full nostril by the deep depression at the side, still the change has been so gradual, that no one speaks about it, and they being the same good creatures few persons ever suspect that their teeth are false. That picture in the father's hand was taken to-day, and is a good one. But look through my longnette, and I will show you her picture, as it will appear six months hence, (if those teeth are removed). But you do not speak! you feel sad at the sight. Now *can our profession do nothing to save her friends that sight*. You say you are afraid if those fangs are not removed they will ulcerate and become diseased. True. But I have a doubt about that, and I intend giving her the benefit of that doubt.

Now I intend to clean out those fangs, by removing the pulp or its remains, and then fill those fangs to the very point, and I expect, in a few days to see those gums assume a healthy appearance, by a restoration to health, of the periostium (external) of the fang.

When I see this I intend to cut down those shattered crowns carefully to the point of juncture with the gum, taking care not to cut beyond that point, so as to wound the periostium if possible. Then after finishing my fillings to that shape, finish by fitting a plate with perfect bearings on the end of the fangs, on which I will adjust teeth, fitting "the festoon of gum" like a pivot tooth, securing by any method thought best in the case.

Time alone will tell whether I am right. You will admit two things. First, that she will have the *most natural* set of artificial teeth that can be put in by any method. Secondly; that she will have also the *most useful* artificial piece while they last. If my adjustment has been perfect, *what will be the effect on those fangs as to their connection with the process or sockets?* You know well the effect of bringing into use in mastication even an unhealthy fang. Perhaps you will be surprised to find that with very slight alterations, (the work of an hour) 10 years hence those fangs appear about as healthy, and the piece remains as useful, as when first adjusted. But such is the fact in some cases, which I could show you. But suppose the worst, suppose with all the alterations the fangs have to be removed in, I will say five years, (it being about the average of my most unfortunate operations of this class). The fact then stands thus, she has had the most useful set she will ever have, and for that period, (*five years*). Her mouth, gums, and the muscles of her face have been preserved in their normal shape and use, and she now at the end of five years, starts where she would have done five years before, had those teeth been then extracted, with only this difference, that the remaining teeth have not suffered half the abrasion, that five years would have caused, if the teeth had been placed on the *soft base* of gum, instead of the *firm one* of fangs, attach which way you please. In explaining this to an old and eminently successful dentist probably one of the first who filled fangs or roots of teeth. He said, "I consider it criminal for a dentist to extract any tooth that can be by any operation retained," and I go farther and say, I consider it *mal practice* to extract even fangs that by any operation any treatment can be retained. I have seen an upper molar tooth, that seventeen years ago was cut down to the gum, and the fangs filled, and I had rather be excused

from the operation of extracting them even now, both as to the force required to dislodge them, and the loss of self respect by mal practice.

I owe to the practice of putting teeth over fangs the first practical lessons in fang filling; I have prepared fangs by filling in this way for eleven years. I dared not put them in without removing all tenderness from the nerve, and have filled up the nerve channel, as a means of purity only, but thus I blundered on what is now, I believe, considered correct practice, as to the extirpation of the pulps, and substituting a filling of gold.

I will offer no speculations as to the effect of cutting off the artery at the point of the fang, by the compression of a filling stopping that foramen. Neither will I offer theories as to the heightened or recuperating influence of the periostium, (external) of the fang. But I will state as a fact, that I do not know that the effect of removing the pulp, and placing in the fang a perfect impervious filling is usually followed by a restoration of health to the periostium of the fang, and that a tooth thus treated will improve in life-like appearance for a year after such operation. And I think it fair to conclude that it partakes of that wise arrangement of the animal economy by which one organ of the body is stimulated to unusual strength by the loss of a partner to the same tissue or organization.

Why is it that we sometimes see a pivot tooth, that has been carefully set last ten, and even fifteen years. In examining those cases, in resetting them, I have found that the pulp or its remains had been carefully removed; whereas, in most cases that have come under my eye, the fang was rapidly decaying, and I have been pretty sure to find the remains of the old dead pulp above the pivot, surely there is a well marked indication here.

It may not be known to all of the readers of the Register, but I think a fact, that in all cases where a tooth with a dead nerve does not ulcerate, but is retained as we sometimes see them in a comparatively healthy state, the foramen at the point of the fang is *hermetically sealed by nature herself*. Surely here is a fact also of value, indicating the operation of fang filling.

I have thus stated in outline my principles of practice in treatment of fangs, but will in a future article speak of *cases*, and endeavor to place this subject more plainly before the profession, but there is one point that I conceive greatly misunderstood as to inducement by way of interest in operating in the way proposed here. I make the assertion with

the full light of facts that it requires more sacrifice of interest, and a more unswerving adherence to what is considered right, maintained against the wishes of patients, and the advice of physicians, than the popular mode of operating. I can point to numerous cases within the last year in my practice where I have lost more than one thousand dollars worth of artificial work, because no money could induce me to extract "those ugly teeth, and put pretty ones in their place." Teeth that I believe can be so filled and treated, as to be retained with comfort and use, or fangs that I believe can be made serviceable by the same operation, I will not, *I dare not extract.*

In looking back on the operations of the profession, for the last ten or fifteen years, I am often led to think that we have committed the too common error of "*hobby riding.*" I may be understood as conveying too much meaning by the use of the word *we*, but I speak of the popular practice. Broad plates and narrow plates, broad clasps and narrow clasps, double plates and single plates, ridge cavity and central cavity plates, have all been tried with commendable zeal; for in this way has the profession advanced, step by step, to a position more worthy the name of DENTAL SURGEONS. But there is one thing that strikes me as too much practiced, which is, that dentists are too apt to apply what they consider the newest and (under some circumstances) best plan for setting plate teeth to *every case*. I am satisfied that there are cases where teeth set on heavy gold wire are the best and most pleasant teeth that can be worn; still it is very seldom I would choose that method, and in the majority of cases such practice is decidedly wrong.

Again, a patient who has a high wedge-shaped alveolar ridge whose posterior termination is not only well defined, but quite prominent, allowing the plate to pass over it cup shaped, can wear a narrow ridge cavity plate, which would never answer for one whose alveolus is absorbed so as to leave it but little prominence.

I merely mention these simple facts as conducing to a careful study of cases, in which I think the judicious dentist will come to the conclusion that there are many things thrown by as useless because they happen to be old, and perhaps practiced by the first dentist we ever saw. That thing alone should not condemn any thing really useful. One case in point. The first dentist I ever saw, wielded a hot iron with which he cauterized perhaps indiscriminately. He and his practice are now reckoned as belonging to the "*dark ages.*" But let me ask, have you ever in excavating, say the anterior side of a second bicuspid, (the first

being gone,) and finding the fresh nerve exposed in one small point, in the cavity, carefully cauterized it, and filled the tooth, and found, after years, the tooth as apparently healthy and life-like in appearance as its perfect neighbor? The operation is an old one, but in some cases certainly useful if performed with skill.

In setting plate teeth, I think that the dentist who studies the particular case with the most care, and then makes the best selection of style, drawn from either his own genius or the suggestions of his co-laborers or predecessors without care, except the true interest of his patient, will succeed the best. And he is a happy man, who can with all such assistance and attention, avoid difficulty, in satisfying himself that he has done all that could have been done in replacing those important organs. With these views of a dentist's duty to his patients, I will present my ideas in regard to some peculiar styles of plate teeth, embracing a very unpopular (in the profession) mode of practice.

But first I will say in regard to attachments, etc., in a practice of about fifteen years, I have never filed between the teeth in a single case, and passed a spring through for the attachment of a plate, and I do not do it if the teeth are naturally separated, but prefer fitting a mere bearing on the lingual side only, on each side, and depend on the fit of the plate, across the mouth, to hold the piece generally going back as far for the bearings as possible, that the leverage of the base may bear a large proportion to the leverage of the tooth. I have in some instances made bearings entirely on fillings which I regard as the most perfect mode of attachment.

The general fact is that patients wearing a partial set of plate teeth, are on the road to another set, and the mode that injures the remaining teeth the least is certainly the best; and had I, for instance, lost the incisors only, and had perfectly sound molars, I would have a filling put in the lingual side of the first and second molars on each side, and four bearings made against the fillings not touching the teeth at all, thus retaining the plate without injury to the natural teeth.

I have set several artificial pieces in that way, and have been so much pleased, that I will venture to offer it to the profession as worthy of trial. In these cases I have left the filling, say a half a line higher in the center, than at the orifice, and in fitting the bearing have made a less but corresponding indentation, so that the plate will spring into place. Great care I think should be taken in finishing the margin so that no receptacle shall be left for foreign deposit.

In backing teeth I think a great point in the attempt at intimation, is lost by the full backing, covering the entire (lingual) surface. Nature's teeth are translucent. By a full backing we make them opaque.

In my opinion many attempts at supplying the loss of the bicuspides (only) fail, or become unnecessarily injurious to the neighboring teeth, by putting in teeth with the double cusp. In these cases I prefer the cuspidati.—*Dental Register*

PATENT CRYSTALINE SPONGE GOLD.

The following is the specification of Letters Patent, issued to Alfred J. Watts, April 26th, 1853.

To ALL WHOM IT MAY CONCERN,—Be it known, that I, Alfred J. Watts, of the city of Utica, in the county of Oneida, and state of New York, have invented a certain new and improved mode of preparing and crystallizing gold, and I do hereby declare that the following is a full clear and exact description thereof.

The nature of my invention consists in dissolving gold, (which has previously been purified by any of the usual and well known methods) in mercury, and after treatment by heat, or otherwise, dissolving out the mercury by nitric acid, and then subjecting the new conditioned, but as yet unfinished gold to the action of a particular heat, whereby it is rendered coherent, soft, and malleable, admirably fitting it for the purpose of filling teeth.

To enable others skilled in the art to make and use my invention, I will proceed to describe the process by which the gold is prepared.

I take gold, either pure or alloyed, dissolve it in nitro-muriatic acid as usual, and precipitate by proto-sulphate of iron. I wash the precipitated gold with diluted hydro-chloric acid, to remove any per-oxide of iron, or other impurities, edulcorate with hot water, and dry it thoroughly.

I now amalgamate it with from 4 to 12 times its own weight of mercury, triturate it thoroughly, and then set it one side, and allow it to stand for from one hour to twenty-four hours, according to circumstances.

If I wish the gold to be in a highly crystalline condition, I make a pretty fluid amalgam, and after thorough trituration, put it in a flat bottom vessel, and heat it gradually till it is quite hot and painful to the touch, say from 180° to 240° Fahr. I keep it at this heat for a few minutes, and then allowing it to cool gradually let it remain some hours as before said to condition itself. I then pour over it pure nitric acid diluted with about its own bulk of water. I apply heat very gently at first, and as the action progresses, I increase it. Towards the end of the operation, when the mercury appears to be all dissolved out, and the gold presents the appearance of a mass of crystals, or semi-crystals, sponge, &c., I pour off the acid solution of mercury, and pour pure un-

diluted nitric acid into the vessel containing the gold, and apply heat. This dissolves out entirely the mercury, or any other metals which may have escaped the action of the diluted acid, and also any of the salts of mercury remaining in the pores of the gold. And after washing with hot water and drying, the gold is left in perfectly pure condition. But in this present state, it is very friable, non-coherent, and so easily broken down, that it will not bear the slightest handling without break-up into a fine powder, and must be very tenderly treated while getting in a position to be subjected to the next process.

When this is thoroughly dry, I raise the heat to a cherry-red, or to a heat just short of the melting point of gold. This is a particular part of the process, and requires care and skill. The heat must be raised just to that point which will partially liquify without actually melting the gold, and when properly managed, the gold will be left in the condition of a soft, malleable and extremely ductile mass of crystals, which will be either close and spongy, or loose and in a mass of brilliant, needle shaped crystals, radiating from centres and crossing each other in every direction, and will bear handling without crumbling to pieces, and upon pressure will readily weld into a solid mass, eminently fitting it for the purpose set forth.

I take gold, either pure or alloyed, (I prefer pure) roll it out into thin strips, heat them to a red heat, cut them up into small pieces, put them into a glass, a matrass, or any convenient vessel to answer the purpose hereinafter mentioned. I pour over it from 6 to 10 times its weight of mercury, apply heat just short of the boiling point of mercury. The vessel is closed and kept cool at the top, so as to condense any mercurial vapors, and the gold dissolves. I pour it into a glass mortar, and afterwards add more mercury, according to circumstances, and triturate it thoroughly till cold, and pour it into a flat bottomed vessel convenient for applying nitric acid. I then, according to the condition I wish to bring the gold into, either apply heat and set it one side to cool gradually or quickly, as required, or set it one side without applying heat, to remain an hour or a day, according to circumstances, and then apply the acid as in other cases before mentioned.

What I claim as my invention, and desire to secure by Letters Patent, is, The within described processes of preparing, or crystalizing gold, for the purpose of filling teeth, substantially as herein set forth and described.

J. L. SMITH,
E. G. DENNIS. } Witnesses.

A. J. WATTS.

Patented 26th April, 1853.

RHIZODONTRYPO—NEURHAMAXIS.

In two late numbers of the Boston Medical and Surgical Journal, we find an article by M. M. Frisselle, in which the writer attempts to

prove that the new operation described and practised by Drs. Hullihen and Miller is not founded on physiological principles, and is, therefore, impracticable. The position taken by Dr. Frisselle is "that the principle of vitality in a tooth, resides in its central ganglion *only*—that it has no other nerves, and when *that* is cut off, it *immediately* loses its vitality, and nature soon makes an effort to remove it." This position he attempts to fortify by the following quotation from Carpenter's Physiology.

"The human teeth consist of three distinct substances; dentine, enamel and cementum." The dentine, which composes the larger part of the tooth, "consists of a firm substance, in which mineral matter largely predominates. It is traversed by a vast number of very fine branching, cylindrical, wavy tubuli, which commence at the pulp-cavity (on whose walls their openings may be seen), and radiate towards the surface. In their course outward, the tubuli occasionally divide dichotomously; and they frequently give off minute branches, which again send off smaller ones. These dentinal tubuli, on their arrival at the line of junction between the enamel and dentine, sometimes recurve and anastomose with contiguous tubes; sometimes pass for a short distance into the enamel; others pass into the interspaces that exist among the large granules that form the *outer surface* of the dentine; and some of them *may even extend* into the cementum and communicate with its radiating cells." Through these tubuli the proper nutriment of the tooth is carried, being absorbed from the pulp-cavity.

Now, there is no doubt but what the principal source of vitality in the dentine portion of the tooth is derived from the pulp, and that when this is destroyed the dentine "immediately loses its vitality," but it by no means follows that the cementum which surrounds the fang also *immediately* loses its vitality." Says Mr. Alexander Nasmyth, "the cortical substance (cementum) has no organic connection with the enamel or ivory against which it lies, and being softer than both is easily detached by means of a knife."

'From the extreme sensitiveness of the cementum, much greater than that of the dentine, and from the tenacity with which the investing membrane often adheres to it for years after the pulp of the tooth has been destroyed, we have no doubt but what it receives a portion of its vitality, if not the whole of it, from its periosteum. In its early stages, while it is the sac containing the pulp, before calcification commences, it is extremely vascular, and afterwards becomes adherent to the fang and neck of the tooth, gradually undergoing the process which the cartilages pass through while being converted into bones. In its general structure it resembles the bones, having the character-

istic corpuscles of Purkinge and the Haversian canals. There is therefore, no doubt but that it continues to possess an obtuse degree of vitality even after the pulp has been destroyed.

This is proved also by the disease called exostosis, which consists of an enlargement of the cementum; a disease identical with exostosis of the bones, and which happens much oftener on fangs of teeth after they have lost their pulps than before.

These facts go to show that the cementum receives its vitality and nutrition from vessels passing into it from without, though in the healthy condition of the dentine Mr. Tomes thinks that the vessels in each structure freely anastomose with each other.

The following are the conclusions which Dr. Frisselle arrives at.

"1st. That the human teeth receive all their vitality from the vessels that enter the pulp cavity.

2d. That the *cementum petrosa* is a non-vascular membrane in the fully developed tooth; consequently can have no part in supplying the tooth with vitality, and can serve only as a connecting medium 'belonging equally to the alveoli and the tooth.'

3d. That the destruction of the central ganglion destroys the vitality of the organ; therefore any operation contemplating it, with a view to its preservation, is not based on physiological and therapeutical principles, and therefore is 'impracticable.'

If these were true there would be but little encouragement to attempt the preservation of a tooth after the pulp was destroyed as nature would immediately cast it off. Instead of this however, we frequently see these teeth, when treated in such a manner as to arrest further decomposition of the dentine, preserved in a healthy condition for many years. As a dead and living substance cannot remain in contact without the latter suffering by it, we find that in all cases the death of the cementum is finally accomplished and its connexion with the periosteum ceases; but this may not happen for years and this fact affords the highest encouragement for us to attempt its preservation by removing all irritation and treating the remainder in such a manner as to arrest its further decomposition.

Whether this can be best accomplished, when the pulp is first exposed, by the new operation of fang-drilling or the old one of fang-filling remains for experience to test; but we are still inclined to believe, if, as Dr. Frisselle contends, neither is based on physiological principles, that both may be performed without doing any violence to correct *surgical* principles.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of

SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

Vol. VII.

AUGUST, 1853.

No. XI.

THE TEETH, WITH RESPECT TO CHARACTER.

BY A. HILL, D. D. S.

(The following article was prepared to be read before the American Society of Dental Surgeons, but as the writer was prevented from attending the late meeting, it makes its first appearance in the Recorder.)

Nothing is made to stand alone, in all God's noble universe. Everything is made in respect to its relations.

From the smallest dust, that floats as a mote in the sunbeam, to the heaviest planet that rolls in silent grandeur through the limitless expanse of ether, all are related to each other. This interdependence, adjusted to the most exquisite harmony, is co-extensive with the universe, and observable in every part.

Nor is this relationship confined to inorganic matter, but it may be traced with the most rigid certainty from the lowest, to the highest development of organized existence.

It may indeed be difficult—yea, impossible, for any finite mind to trace relationships like these through all their varied manifestations, yet, there are some of them so prominent as to challenge the attention of the most casual observer; and so distinct and clear, as to serve as landmarks to more extended researches.

A knowledge of these relations, constitutes the basis of all science, as well as the more imposing superstructure itself. And the strict, and proper adjustment of them, constitutes the perfection of science in any, or all of its multiform divisions.

How finely is this illustrated, in every branch of human science, to which we may turn our attention.

The exhaustless field of *chemistry*, speaks to us only of relationships.

The science of *mechanics* proclaims it in the din and clatter of machinery, puffs it forth from the pipe of every steam vessel—snorts it out from every locomotive, and writes it on every fabrication.

Here, too, *astronomy* lays her foundation stone, then rears her lofty,

pedestal, and from its cloud capp'd summit, sweeps the pathless heavens.

It is written on the dark brow of the angry cloud in letters of fire, and reverberates around the globe in tones of heaviest thunder.

From a given point, philosophy starts forth, to gambol at pleasure restrained by no other boundary, and controlled by no other consideration.

Anatomy and Physiology are nothing, only as they serve to develop the more special relationships of man's physical nature. And Materia-Medica, Pharmacy and Therapeutics are all based upon the same idea.

The extent of our knowledge of these relationships, is the sum of our scientific attainments—and the skill with which we can adjust them, is the sum of our artistic acquirements. In the light of these suggestions, how stupendous is our ignorance ! how prodigious our conceit !

Man finds himself a feeble link in this mighty chain of dependences, and sinks abashed from the consideration of a subject so wonderful—so overwhelming. In the light of such considerations, the science of medicine, hoary, and venerable as it is, seems a confused mass of jumbled fragments. And much of its vaunted pretension consists of the hap-hazard, and experimental manner, of attacking the exquisite and delicate relationships of human beings, and rudely breaking the sensitive fibres of man's earthly existence.

Where it proposes to facilitate motion, and lubricate the machinery, it not unfrequently increases the friction. And it often accelerates motion, where it proposes to restrain it.

In elevating the temperature of the body, it often induces a fever, and in subduing a fever, it brings on the icy chill of death itself.

It carelessly dabbles its bold, rough hand, where it should only feel its way with the utmost caution, or timidly shrinks from action, where energy and prompt dealing are essential to life. It deals with recondite and occult agencies as with things familiar, and heedlessly rushes into the temple of life, when it should only tread the vestibule, with reverent devotion. With a rusty knife, and a boorish hand, it often carves its clumsy initials on the lovely facade, or beautiful columns of this wonderful building, and leaves upon its very front, the evidence of its cruel barbarity, as well as the hateful monument of its shame.

We would not be thought guilty of slandering a noble profession, for such, it most certainly is—but we would rebuke with all our energy the presumptuous folly, and reckless profanity, that would lay its heavy

hand with such rude indifference, on relationships so important, and of necessity so little understood.

But the hand that shall strike the key-note of harmony, and sweep again the responsive strings of life and health, restoring order, and adjusting balances where confusion and dissonance reigned before; that individual shall be honored—he shall be accounted a musician of wondrous skill—a God-gifted being indeed.

We apprehend, it is a great mistake with many, in treating man as an animal merely. Or, even as an intellectual animal. Those psychological relations which strike deeper, rise higher, and extend wider than mere physicality, or even intellectuality, must be taken into the account, in our estimate of a human being. We regard it, as a poor compliment to any individual when it may be said of him, that in consequence of an affected disregard of these relationships, he has come to treat them with derision and contempt. Forgetting his high birth-right in his own brutality, he has learned to deny to his brother man the most important and significant attributes of his nature.

And how can such a being restore to harmony the broken cords of this wonderful instrument? He roughly seizes the strings while nature cries against him with her ten thousand voices, and still he persists.

He moves a lever here, and a wheel there.—Here, he snaps a cord with over tension, and there he relaxes, until amidst "confusion worse confounded," he yields his victim, to the merciful interposition of death. But it is only to seize a new one, on which to continue his horrid experiments. Are not *these* the men *par-excellence*, of whom it may be said—

"They have no music in their souls,
And are not moved by concord of sweet sounds—
Just fit for treason, stratagems and spoils."

and may we not add in the language of the great Shakspeare—

"Let no such man be trusted."

It may be asked, "who then, is sufficient for these things?" If such are the duties to be performed, and such the responsibilities involved who then is sufficient for these things?

Certainly, not *that* man, whose heart is steel'd to human sympathy, and whose eyes and ears are closed to the beauty, and harmony of God's master-piece of creation.

Everything beautiful in art, is mirror'd in the soul of man. The great world without, is only symbolic of the world within. These live.

ly creations of magic beauty, and surpassing loveliness, are awakened in the soul, by external objects with which we are surrounded, but the only seem the *occasion*, not the *source*, from whence we derive them.

And what are they all, but conceptions, more or less perfect, of these wonderful relations? They are evidently the incidents of a being, an existence more mysterious themselves. They are the implements of our education—they are the external voices of nature, that awaken their immortal echo's within us—they call, and we respond, they speak, and we answer.

We seem like little children, surrounded with toys, and play-things, which a kind and beneficent Father hath supplied to our hand, not merely to amuse, but to instruct and educate us. And the nature of man unfolds itself, just so fast and no faster, as the mind embraces a knowledge of the relation of things.

Every thing comic and grotesque, seems a departure from the laws of harmony and proportion, and the effect produced upon the mind by these apparently false and singular relations, varies with their ever varying combinations.

Music is nothing, only as it is related to the organization of man. And it fails to produce a response, when the relationship between his physical and spiritual constitution is dissolved. It is clearly an incident of his being, and serves only to awaken and develop the surprising capabilities of his nature.

Education, is a word of great significance. But it has come to be restricted to the acquisition of a very few, and select branches of science, which by no means comprehend the entire import of its vast meaning.

In view of the vast field, which opens up before the intelligent observation of mankind, in the onward progress of educational development, scarcely any truth comes home to the mind with more force, than that which brings to us the consciousness of our own ignorance.

It was thus that the great Newton could say, not so much in view of what he had learned, as in gazing with all the force of his intellectuality into the great field beyond, that he had "only picked up a few pebbles from the shore," of this vast ocean of human science.

If education consists in a knowledge of the relation which one thing sustains to another, it is well for us to remember, that there are many highly educated men, who know comparatively nothing, of classical literature, properly so called.

But we perceive that our reflections have led us into bye-paths, quite foreign to the chief design which we entertained at the start, and with reference to which we have ventured once more to solicit the attention of the profession. Yet they have sprung up so naturally along our path, that we could scarcely resist their seductive influence.

We trust however, they may be found not altogether destitute of interest on the present occasion.

It will be remembered that in a paper published some time since, in the American Journal of Dental Science, we spoke of the human teeth in their relation to the voice, both with respect to articulate language and song. And it would doubtless be both interesting and instructive to trace these several relations through the various ranks of different classes of animals with respect to vocalization. For animals of each class, make their distinctive sounds. Birds sing their peculiar songs. The horse neighs, the dog barks, the bull bellows, the lion growls, the hog grunts, &c. &c.

What is the peculiar relation of the dental organs, to these peculiarities of sound and song? Why can the Parrot articulate language, while the Eagle can only scream? Why can the Mocking Bird imitate the various songs of all the feathered tribe, while it cannot articulate a single word of human language? Have the dental organs anything to do with this matter, and what?

Many very curious questions spring up here in relation to this subject, which we have not time now to consider. But we would simply remark in passing, that God has made everything with respect to its relations, and that there is, unquestionably, an intimate relationship between the dental, and vocal organs, in each class of animals possessing them, and especially so, as we have previously shown, in human beings. Our present purpose; notwithstanding our circumlocution, is to notice some of these relations, as indicative of *character*.

And the utmost we expect, is to furnish a few hints, to those whose interest in the matter may be sufficient to pursue the investigation to a greater extent, than we shall venture to go at the present time.

We mean by *character*, those peculiar qualities, which nature or habit, have impressed upon an individual, and that which so clearly distinguishes him, from other individuals of the same class.

These physiognomical signs, stand out with great boldness, and particularly on many individuals of the human species, as well as upon animals of much inferior grade.

Who can gaze into the face of a Lion, and not feel the power of majesty, and the strength of courage? Or who can look upon a Jackall, or Hyena, without a sense of despicable meanness?

The Monkey stands as the representative of fun and frolic, and while you laugh immoderately at his manoeuvres, and the inexpressible drollery of his countenance, you wonder why he does not laugh at his own performances.

The fierceness of the Tiger makes you afraid, while the innocence of the Lamb, taxes your sympathy.

With the groveling, grunting, rooting swine, you are disgusted, while you will spend hours of delight and pleasure in witnessing the pretty pranks of the playful puppy or kitten.

You would bruise the head of a serpent, with unrelenting severity, while you would caress with the utmost tenderness the harmless rabbit, or the pretty songster, rescued from his fangs.

So strongly is character impressed upon the several classes of animals, that a corresponding impression is made upon your mind as soon as you behold them.

Phrenologists have looked at the developments of the brain, and the external surfaces of the cranium to find the key that would unlock the secret springs of these distinctive peculiarities; and have pretended to read there, the mystery which has been so long hidden from the understandings of men.

Physiognomists have gazed with wrapt attention upon the "human face divine," and have sought for the soul's strange hieroglyphics to be displayed upon the ever varying—ever changing lineaments of the countenance.

Phreno-Physiognomists, have taken the brain and face together, and bound up the singular results of their investigations, in one united volume, whose ample pages should suffice to explain and illustrate, all the mystic symbols of human character.

It is not with a view of presenting *Dentonomy* as a rival system, whose weird agency shall break the spell, and reveal the secrets which other systems have but partially developed, or to present it as altogether novel, that we now introduce it; but to call attention to the subject for the sake of its practical suggestions.

We think, that no single class of animal organism can be sufficiently well understood by us, to tell the whole story upon this subject. And yet we opine, that if we were permitted fully to comprehend the entire

relationship subsisting between the different organs of the human system, one class of organs would reveal to us the peculiar character of each; and thus by witnessing *one* fact, we could easily infer many important considerations pertaining to it. But since our knowledge is necessarily so limited, and imperfect, and the action of one class of organs so modified by another, we can only hope to approximate the truth somewhat remotely.

If a knowledge of the various relationships of the animal economy could enable *Cuvier*, the world renowned naturalist, to reconstruct the animal of an extinct species from disjointed and fragmentary parts of its framework only, and not only so, but to explain the peculiar habits of the animal, the mode of its life, food, &c., we have strong grounds to believe, that not a little may be inferred, from the size shape, position and number, of the human teeth, as to the character of the individual possessing them. And not merely his habits as to food, &c., but his intellectual and moral characteristics.

The peculiar shape of the dental arch is governed almost exclusively by the number, form, size and position of the teeth. And the lips are formed invariably to correspond with the same.

And these features, must ever hold a controlling influence over the countenance. Such characteristics of the mouth and teeth, constitute the strongest peculiarity by which animals of the inferior classes, are known to be distinguished.

And moreover, the development of the superior maxillary, is so intimately connected with the vomer, and other bones of the nasal organs, as to exert a controlling influence in the formation and shape of the external appendage, to which they stand related.

So true is this, that we can always tell to a certainty almost, the form of the maxillary by seeing the nose alone, and *vice-versa*.

These, taken unitedly, constitute a most important group of physiognomical signs, which never fail to display in a greater or less degree, the peculiar characteristics of the individual, who hangs them out to the gaze of mankind.

We grant, that no inconsiderable skill and expertness is necessary to trace correctly, the mental and moral habitudes of an individual, by such accompanying physical signs, in many instances. But we have frequently seen persons, with regard to whom it might be said with strict propriety, that "he who runs may read."

How frequently it is said, on beholding an individual for the first

time. "*That person has a very benevolent expression.*" "*That fellow looks miserably mean,*" &c. And that too, as it were instinctively.

We did not stop to analize the various features of the face, or to philosophize about them. But we read distinctly, and instinctively, those various signs which stand as the representatives of these different and conflicting traits of character.

We say of one man, he is all spirit—of another, he is all animal. We see intellectuality, written upon the forehead, flashing from the eye, breathing through the nostril, and playing about the lips of one individual, while *bestiality* is equally legible, and as easy to be predicated of the other. And not only so, but the moral qualities even, by a kind of reflex action, displaying their significant ensignia upon their human countenance. For we say, "*this is a good man,*" and that is a bad man, with as much confidence, as if we had known them intimately for years. Nor is it all strange, that long cherished emotions—moral sentiments, or mental habitudes, should impress themselves with so much emphasis upon the countenance of man.

Or that they should serve to mould or give form and fashion, to those features more immediately under their control. It is well known, that the passions all have their appropriate signs, or modes of expression. And in proportion to their intensity, will all the feelings of the soul, be found written upon the face. To say that we cannot read them all, militates nothing against the fact, that they are so written there. This truth was distinctly recognized, when God demanded of *Cain*, with such stern emphasis, "*Why art thou sad, and why is thy countenance fallen?*"

From the most radiant smile, that plays with seraphic beauty, to the dismal frown, that hangs o'er the face, as a thunder-cloud hangs o'er the heavens, we may by careful observation, trace the intermediate shades of thought and feeling.

To trace these relations in all their particularity and extent, is the business of the practical Physiognomist. But to throw out a few bold hints upon this subject, with a view to their practical relations to the practice of our profession, is the business of the writer of this article.

Does any one suppose, that the flat nose, thick lips, elliptical arch, and large herbiverous teeth of the African, are not distinctive? Or will any one pretend, that the dental organs are not specially related to these correlative signs? Or, furthermore, that they are not altogether, highly expressive of character.

We are quite certain, that no class of men are more distinctly marked, than the genuine African race. And we are equally certain, that if the signs above mentioned were removed, and their relations dissolved, the African, would be no longer African.

In an exceedingly interesting paper, on the "jaws and teeth of semi-barbarous races of men," published in the London Lancet, by Mr. Levison, an English writer of clever abilities, he says, "If a number of national crania, were placed promiscuously on a table, I would undertake to arrange them ethnologically, according to their comparative degrees of civilization, merely by the form of their jaws, and the position of their teeth."

Now if the effect of civilization is such, as to change the form, size, and position of the dental organs, and (as a matter of course) to produce a corresponding change in the nose and lips, is it extravagant in us to infer a corresponding change of character?

And that the nose and lips do change with these various degrees of civilization, is a truth, which each one of us can verify for himself, by looking at the Negroes of our own country, as they are passing through these various stages, where sufficient time has elapsed for such changes to occur.

But then, these controlling signs are not more emphatic, and expressive in the Negro, than in the North American Indian, or the Indians of the South Pacific Ocean. Nor is there a more marked distinction between the teeth of the Herbiverous, and Carniverous animals, than between the teeth of the genuine African, and the native Fejeean. And it is worthy of observation, that with these distinctive signs, there is the most perfect correspondence, and agreement of character.

That fierce, gaunt looking figure, that dances like a Deamon around the roasted body of a human being, preparatory to a feast, from which a civilized human being would turn away with horror, is as unlike the native African, as the Tiger is unlike the Lamb. And his Carnivorous teeth and jaws, proclaim him a flesh-eater, with as much certainty, as do those of his more respectable prototype.

The barn-yard fowl and the vulture, would bear a similar comparison. And is it possible that such a marked contrast, in the habits of the two, does not involve a corresponding contrast in those physical signs, by which such traits of character are expressed?

These characteristics, both physical and moral, are marked with equal strength, in all the Cannibal and flesh eating tribes of the South Pacific

ocean. And we fully agree with Levison, in declaring, that the ethnological signs pertaining to the dental organs alone, are sufficient to mark the different degrees of civilization of the individual in which they are seen; and not only so, but the peculiar traits of character by which they are known to be distinguished.

It is very true, that where circumstances conspire to modify and confuse these signs, a greater degree of study, and acute observation are necessary to determine the preponderance of any special trait of character. But still, where attention is given to the subject, one can scarcely fail of being struck with many forcible illustrations of the fact, which we are laboring to establish.

It may be proper to mention a fact here, which has frequently come under our notice, as we doubt not it has also come to the notice of many others. And we mention it, as confirmatory of the views of another writer, whose comments upon the remarks of Mr. Levison, have been republished in the American Journal of Dental Science, and are entitled to our consideration.

The peasantry that come to this country from the rural districts of Ireland, present some of the finest specimens of dentition, which we have ever seen, especially the female portion of them. Both with respect to the maxillary expansion, and the development of the teeth themselves. Such a thing as a crowded denture, or irregularity of the teeth among them, is comparatively rare.

In most cases, the circle is elegantly formed, the teeth large, strong, and uniformly set, presenting all the physiognomical signs as to character for which these people are remarkable. The Gramminiverous indications are at once striking and emphatic, and so far as our observation goes, correspond with their native habits and character.

The Irish servant girls that come to this country with but few exceptions, can exhibit we think, as fine dentological developements, as any other class of people in the world.

The broad palatine arch, the regularity of the teeth, the finely expanded mouth and voluptuous lips, conspire to form a pleasant group of physiognomical indications, exceedingly expressive of noble and generous character. Indeed, one can never associate *essential meanness, or sordid selfishness*, with such expressive symbols.

The smile that habitually lurks about the corners, and the hearty laugh that frequently bursts from such a mouth, would dissipate the very last suspicion of any thing of the kind. Nor is this peculiar to the Irish

peasantry merely, but such a mouth, and such correlative indications, are opposed as strongly, to the *sniveling meanness* of a certain class of human beings, as generosity and benevolence are opposed to the *niggardly miser*. And the signs by which they are represented, are as clearly and distinctly marked, between one class and another of the human species, as between the noble *mastiff*, on the one hand, and the sneaking *rat* upon the other.

Language too, comes from such a mouth, with the greatest ease and fluency, and is invested with a charm, which no other circumstances can impart. And how intimately these are connected with—

“The rich Irish brogue,”

we leave you to determine for yourselves. But we cannot resist the conviction, that *those words*, which have recently passed into a powerful satire, are based upon a deep, and pure philosophy.

“The pits of laughter dimple in his cheeks;
“His speech is flavorful, evermore he talks
“In a warm, brown, autumnal sort of style.
“A worthy man, sir.”

Where education, genius, and occasion unite to develop their power, as in the case of Meagher, the distinguished Irish exile, the world becomes a charmed listener to the melody, richness, and compass of their notes.

And although we have never had the pleasure of seeing this distinguished individual, yet, reasoning *apriori*, we are willing to risk the opinion, that his case will not refute our philosophy.

By the way, there is a fact in regard to the teeth of these Irish servant girls, well deserving the attention of American dentists.

The most of them come to this country with a perfect denture. But in the course of two, three, or four years, by the destructive influence of caries, begin to lose their teeth.

We have not had the same opportunity for personal observation in regard to any other portion of our foreign population, as in regard to those above mentioned. But from a limited observation in reference to this matter, of the teeth of the German and Swedish emigrants to this country, we are convinced of the fact, that simplicity of habit and diet, has much to do, not merely with the development and formation of the teeth, but with their preservation.

In some picture gallery, where, we cannot now remember,—we have been struck with the representation of “The Miser,” and we dis-

tinctly remember the sniveled features of the mouth and nose,—the contracted and puckered aspect of the face in general.

The front superior incisors displaying themselves as in animals of the *Rodentia* class, and all the muscles of the face drawn into a corresponding shape. And it is not a little remarkable that the old masters, in representing Judas Iscariot with his bag, have drawn a similar portrait. And if our memory serves us correctly, West, in his celebrated picture of "Christ healing the sick in the Temple," has given an illustration of this character, in the portrait of Judas, corresponding with these views.

At all events, nothing can be more unlike, than the lines which nature herself has drawn, to represent these antagonistic characters. And it is a fact worthy of observation that the mouth and teeth, as well as the nose and lips, are in perfect keeping with the other features of the face.

The broad grin, the mouth stretching from ear to ear, as it were, and the teeth circling in well developed order in the form of an ellipse—the cheeks dimpled in one place and puffed out in another, just ready to explode with real good nature, all conspire to represent the very soul of cheerfulness and benevolence.

But where the lines are drawn in an opposite direction, they most certainly represent an opposite character. And apropos, of a contracted mouth and puckered lips, are the tight drawn strings, and gathered border of a closed purse. And where this disposition is indulged, the soul shrinks in upon itself, and withers into frightful deformity, as if shorn of every generous and noble impulse, and bereft of every attribute that can adorn humanity.

EXTRACTION OF TEETH.

BY DR. J. TAYLOR.

(Continued.)

In our last, we gave a general description of the forceps, used in extracting the teeth of the superior maxilla. They consist of first, an anterior and posterior molar forceps, for either side—making four pairs. Second, a dens sapientiae forceps, and third a bicuspid forceps. To these we prefer to add a small forceps adapted to the lateral incisor teeth, and a pair for either side of molar forceps, the outer beak with one point so as to pass between the labial roots of these teeth. When thus perfected we have nine pairs. For ordinary use we may reject all but the two

pairs of molars, one *dens sapientiæ*, one bicuspid; which applies, also, to the *cuspidati* and *incisors*, making but four pairs.

For the teeth of the inferior maxilla, we have first right and left molars. The right, which is that which applies to the teeth of the right side, is really the hawk's bill forceps, one blade being much longer than the other passing over the crown of the teeth, and applying to their *palatal* face. This instrument is slightly curved in the bar, so that it will lay hold of the posterior molar with facility. One blade of the handle curves around the little finger when in the operator's hand. The beaks are grooved to suit the two roots of these teeth, the central point being the longest, and passing between the roots. The blades of these forceps should be grooved out to fit the crowns of these teeth, and made smooth on their inner surface, so that in being applied when the points of the beaks have enclosed the crown of the tooth above the body, they will slip far up on the neck of the tooth, as far indeed as the alveolus will permit. This adaptation may be such, that when the roots are straight, the mere closing of the forceps on the tooth will raise it from the socket. This description or adaptation to the teeth, will suit for both right and left. The form, however, for the forceps of the left side is entirely different; it opens reversely from that of the right, this forceps has two curves, one between the beak and joint, which permits it to pass back over the anterior teeth, and apply to the posterior molar, or even the *dens sapientiæ*. The second curve is near the joint, between this and where the handles are turned to fit the hand. These curves enable the operator to pass the forceps obliquely in the mouth from the right side, and lay hold of the tooth on a line with the direction of the alveolus. The adaptation, indeed, in this respect, is far better than the molar for the right side, excepting, indeed, where we have, as is sometimes the case, the anterior molar leaning a little out of the circle in which the other teeth are set, that is, not pointing to the centre of the alveolar arch. It will be recollectcd, that the position for the extraction of these teeth, is a little to the right, and back of the patient, with the chin embraced in the left hand of the operator. We regard this forceps to us one of the most available in the whole set, and its construction, gave us more trouble than any improvement we have made in extracting instruments.

We think that we had not less than half a dozen pairs made, before we could get the curve and the adaptation we wanted. After having thoroughly tested its utility, we had a pair made for the bicuspides of the

same side, made after the same general pattern ; the only difference, the blades being adapted to these teeth. With these forceps the force can be applied on a line with the direction of the socket, which we regard as of great importance, and the forceps in general use for the teeth of the right side, will not permit this excepting where a tooth stands pointing without the circle.

For the bicuspides of the right side, we have a hawk's bill forceps which we use also on the cuspidati of the same side. For the incisors, we use the strait or curved root forceps.

The dens sapientiae below we have formerly regarded as one of the most difficult teeth to remove. We are glad to say, that an instrument has been brought into use for their removal, which has done away with, in almost all cases, the difficulty. This is, what is called Physic's elevator. It is so much like a forceps in every thing but the blades ; that we shall now give it a place with these valuable instruments.

This instrument is especially adapted to the dens sapientiae of the lower jaw, yet we often use it for the upper. The blades are bent, at or near a right angle with the bar of the instrument. The blades are made varying from half an inch, to an inch in length. Made convex on one side, and concave on the other, and are designed to pass between the posterior molar and dens sapientiae teeth. The convex surface when applied sliding over the posterior face of the molar teeth, catching the dens sapientiae in their concave surface, and lifting the tooth from its socket, on a line somewhat with the curve of the roots. We have never seen any other instrument except an elevator of some kind, which would do this. No forceps or turnkey can be applied to effect their removal in this manner. There are some one or two conditions of the teeth, where the application of this instrument is inadmissible. First, when the contiguous molar is gone, and second, when it is so much decayed that it presents no surface, as a fulcrum for the blades of the instrument, or where the anterior approximal face of the dens sapientiae, is decayed so much that there is no point above the edge of the alveolus for the point of the instrument to play upon. The molar may be loose, and would not with safety bear the pressure. We would, however, here remark, that the general apprehension of danger to this tooth, in the application of this instrument, is by no means well founded. The construction of the instrument is such that the force is exerted almost entirely on the teeth to be removed. A little sleight, however, in the application of this instrument, facilitates very much, the operation. The

head should be held firm, and as the instrument is closed, forcing the blades between the teeth, pressure is made backwards against the dens sapientiæ, undue pressure will thus be prevented against the molar. The application of force, here raises the tooth partially out of the socket, throwing it slightly backwards. It is then removed with a small pair of forceps. We will give a recent case showing the application of this instrument—a few days since, a Frenchman applied, to have the left dens sapientiæ of the inferior maxilla removed. The tooth had been a source of pain for near a year, and the swelling and induration extended from the ear along the lower jaw, to near the symphysis, and down the neck some five or six inches. When he first called the mouth could not be opened more than three fourths of an inch, between the incisor teeth. After using force with a wedge, for two or three days, about an inch of space was obtained. The swelling was so great that we could not apply our old common shaped elevator which has but a slight curve in the bar, and we could not pass what is called Physic's Elevator, made in the bar about as thick as a common forceps, back to the tooth. While pressure was being applied to gain a wider opening of the mouth, we had an elevator made with the bar sufficiently curved to allow the point to be passed back between the teeth, but the tooth was so sore, and the patient so unsteady, that we could not apply this instrnmnt with that security and precision we desired. We then took an old pair of elevating forceps, which in the bar is not more than half as thick as usual, and then filed off and rounded down the points of the blades, so that by using some force, we passed it back to the tooth, having first (to gain all the space and room, for the instrument possible) opened the blades and thus slipped it over and back of the posterior molar. So soon as we felt the point of the blades of the instrument pass back on the posterior level of the crown of the molar we commenced closing the instrument and forcing it downwards, so that the points of the blades should get as low as the imbedded dens sapientiæ tooth. This movement caught the tooth and raised it up nearly on a level with the molar, when with a crooked bicuspid-forceps, the tooth was removed from the mouth. The upper portion of the crown of this tooth pressed against the posterior face of the molar, and did not come up, on a level with the largest circumference of the crown of the molar.

The roots curved back under the coronoid process of the bone, and no forceps in this condition of the mouth, even if in a healthy state, could have been brought to bear on the tooth, and had this been possible the

force for the extraction of the tooth would have been applied against the resistance of the molar and the crooked roots of the dens sapientiae. We do not give this, as specially an extraordinary case, only so far as the extensive swelling was concerned, and the difficulties occasioned from this cause in the removal of the tooth. Here, had it not been for an old instrument of my brother Joseph Taylor, formerly of Maysville, Kentucky ; which he had made while at that place, for first separating roots, and then for the removal of such teeth, we should have had in all probability much more difficulty than we had.

This instrument, indeed, was made and in use years before the physic's elevators were seen or known of in the West. He used it for two or three years before any were in use to my knowledge, and that long before we could consent to try it, or have one made for ourself. Dr. Griffith of Lousville, has an old instrument, which he uses to great advantage for a similar purpose, and is just the same in principle, only the blades open the reverse side, just like a hawk's bill forceps. We have used this instrument, the elevator, for loosening the posterior molar when the dens sapientiae was out, and the anterior molar good and fine, the posterior molar being decayed below the gum ; only a firm portion resting against the anterior molar, and in no case have we ever injured in the least any tooth which we have used as a fulcrum, in the application of this instrument.

We have now given a general idea of the forceps we use in the extraction of teeth ; not, it is true, having described the root forceps. These we shall merely remark consist, with us, of some three or four pairs made very sharp at the point of the blades, and so tempered as not to break by the application of considerable force. We have them of various curves from nearly straight to one at near right angles--with us a great desideratum is adaptation to the root. The blades should encircle the roots neatly and accurately, allowing the pressure in their application to be as equable on the frail root as possible. They should be so made on their grooved points, that they will slip up upon the roots to the edge of the alveolus, without any difficulty, and so sharp at the points that they will separate the gum as they pass up, and if need be, can be forced into the socket itself.

We shall give the application of these instrnments somewhat in the order in which we have described them—remarking however, that we have been perhaps, sufficiently explicit in relation to the elevator—as we progress in this description, it will be necessary to allude to the ge-

neral anatomical appearance of the different teeth, and sometimes their relation to the parts with which they are connected, and as we are writing more for the beginner than the expert operator, we shall as far as we can, give the difficulties in the way. We do not always get out a tooth the first effort, and we have very little patience with those who say they do.

We have first the molars of the inferior maxilla of the right side, and for their removal a hawk's bill forceps, the beak for the palatal face of the tooth being long, reaching over the crown of the tooth, and adjusting the point of the blade, just where the two roots of these teeth begin to separate. The short beak at the same time takes its place similarly on the labial face of the teeth. We are now standing a little to the right and behind our patient on a stool, and have hold of the chin with our left hand. If the tooth leans inward, the bar of the instrument comes almost in contact with the upper teeth, and hence very little force can be exerted inward for loosening the tooth. If an anterior molar, the roots often separate, so a line drawn around them, will measure more than around the crown of the tooth. The roots generally are much flattened, transversely, and turn a little backwards.

The first application of force we make, is upward and outward, from the fact that the inward motion is not often to any extent admissible. We have, it is true, here to contend with the resistance of the outer plate of the inferior maxilla, and often a firm and unyielding alveolus. This first motion, however, generally loosens the tooth, and if we feel it still confined in the socket, we move inward and backward, and then outward. These motions, where the roots separate much, is often necessary, and in the anterior molar this is often the case, but for the second molar the outward and upward motion is generally sufficient. So far, this is all easy, but say the tooth is frail, and the first motion it breaks off below the gum. If the tooth is anything like sound at the neck, we would not, however, anticipate the breaking of the tooth. And if after a careful examination of the teeth, we found there would be danger of breaking, we should, in applying the forceps, force as low on the tooth as possible, and as it was pressed to its place, give a short rocking motion inward and outward, loosening if possible, the tooth in this way, before the direct force for extraction is applied.

We would here remark that in all cases where much decay is manifest, we always insist on carefully examining the extent of the decay, also, ascertain the condition of the alveolus, ascertain if it is firm and

strong on the upper margin, and if it adheres closely to the tooth, and if it comes up high on the neck—see with my probe if the decay dips below the border of the alveolus. The neck of the teeth, and the condition of the alveolus, can be examined with a gum lancet which I have made flat on one side and rounded on the other, and rather press the gum away, than cut it. The examination of the depth of decay can generally be well made, without touching an exposed nerve. These are points where teeth are much decayed, that are very essential, and if properly attended to, a vast amount of suffering may often be avoided.

But we have now a broken anterior molar of the lower jaw to extract. The first thing to be done, is to examine carefully with a gum lancet, the condition of the roots. See if there be any point which will bear the application of the instrument. If the decay has been principally on the posterior part of the tooth it may have broken very low at this part, and anteriorly not so low, but that a root forceps will take hold of the anterior root. If then this stands up a little above the alveolus, we take the gum lancet, and separate the gum where the forceps blades apply thoroughly to the alveolus, and often force the lancet into the socket on either side, this enables us to force the forceps as far as possible down on the firm portion of the root, so that another break of the tooth will not take place. In this operation we would expect to remove the anterior root and often if the union is strong, both, if not the posterior root will be left in. If the root is exceedingly frail, the forceps we use in this part of the operation, is the most curved root forceps we have, and we stand rather to the right and front of the patient, holding the chin with our left hand, and as we force the forceps down as low as possible, we make short motions inward and outward, taking care not to close the forceps so tight as to break the root, or prevent its slipping down on the root. Fear of hurting the patient, or indecision only adds to the difficulty, and often occasions twice as much pain to the patient. A firm hand with the operator, and firm head with the patient, will almost invariably insure success.

The posterior root is now to be removed, and a careful examination should be made, and if there be a point within and without sufficient for the application of the forceps, we apply as in the other root. In most of these cases where the root is frail and the alveolus can be forced a little open we do this before applying our forceps. In this operation we have two objects in view; first, lessening of the root, and second, a more secure application of the forceps. The opening of the alveolus, is usual-

If not attended with much pain, for we are now operating on almost entirely osseous structure. The instrument we use for this purpose, is a sharp pointed and strong gum lancet, made as before remarked, a little concave on one side, and convex on the other, that is something like the point of a root forceps, only sharper. As this is forced in by the root, the socket must open or the root raise up, for there is not room for both. We have a pair of these, besides a straight one for the upper jaw. But we may now be told, that teeth sometimes break so low down as to forbid the application of the forceps as described. This is very true, and we will now state a case. The tooth breaks on a level with the upper margin of the alveolar processes, and this is firm and unyielding, so much so, that it is not practicable to open the socket as described. We then proceed as follows: We take our lancet, and pierce the gum about two lines below the upper margin of the alveolus, and make from this point which strikes between the roots a circular incision upward and forward, and also backward, as far as the center of either root and indeed to in a measure embrace both roots, one cut with a lancet either way effects this. We then take a beveled edge, cutting instrument, such as we use for cutting down the enamel over decay. With this we cut the bone as before we had cut the gum. We then pass in our gum lancet, and by a little force separate this portion of the alveolus from the roots, and remove it out of the way. We have now free access to the labial portion of the roots.

We have already described a hawk's bill forceps with a single pointed beak or point. This is for these cases. We separate now the gum slightly from the alveolus on the palatal side; we now apply our forceps with one point, between the roots on the outside and embracing a little of the alveolus within, the first motion is now made inward and upward, and difficult indeed must be the case, if the roots are not either removed, or separated and loosened by this operation. I believe we have never had to cut away the process of the palatal side of the roots. We have a few times forced open the socket between the roots, and got room for the point of our forcep blade, and prefer doing this when it is easily done. If the roots separate and do not come entirely out, they generally are more easily removed with the root forceps.

We have confined our remarks particularly to the operation of removing the anterior inferior molar of the right side, but it is equally applicable to the posterior molar of the same side. The roots in the latter are more frequently united, and generally require less force for re-

moval. For the molar of the left side, (inferior maxilla,) our forceps is applied obliquely across the mouth, our position is behind and a little to the right of the patient, and as before we hold the chin with our left hand. The construction of this forceps gives us opportunity to make freely the inward motion in the loosening of this tooth, and hence we find the teeth of this side more easily removed. The application of force is on these teeth first inward then upward and outward. If the tooth holds in the socket after these movements have been made, we direct the force backward and upwards ; rocking it so as to disengage it from the alveolus. These the anterior molars of the inferior maxilla, are sometimes held in after having been perfectly loosened, requiring after this considerable force for their removal. This is owing to the diverging and crooked condition of the roots, most frequently curving backwards. We had a case a few years since of this kind ; where after the teeth had been raised two or three lines, we could not with all the force we felt willing to apply, remove the tooth with the forceps. We divided the crown with a separating file, and separating forceps, and took each root out separately, and when put together, it was apparent that roots or processes one must have broken but for this separation.—

Dental Register.

SUPERIORITY OF AMALGAM FILLINGS FOR FRAIL TEETH.

Previous to 1845, for several years, we had been in the practice of using amalgam for filling large cavities in molar teeth, when the parieties were thought to be too frail to sustain the pressure necessary to condense gold into a substantial filling. This practice was productive of no bad results so far as we could ever discover ; but on the contrary was successful in preserving many frail teeth longer than we ever saw such teeth preserved by the use of any other material ; some of them being still useful and as good as when filled. Such, however, was the influence in the American Society of Dental Surgeons, of which we were then a member, to induce all its members to discontinue the use of amalgam for filling teeth, that we finally conceded the point for the purpose of promoting union and harmony in the society and agreed not to use it again while we remained a member.

From this time (August 1845) to February 1848, we did not use it in our practice, but faithfully and thoroughly tested gold in large cavities with all the care and skill that we possessed. It was during this

time that the following case occurred in our practice which was reported in an article upon filling large cavities in molar teeth, published in Vol. 1st of the Dental Recorder.

"Mr. G.—had a lower molar tooth, with two tin fillings in it; one on the anterior side, next the ibcusped, and one on the posterior, each of them large and extending down quite to the gum; the tooth was also decayed upon the top from the forward plug to the back one, so that when the caries and the tin fillings were removed, the three cavities communicated with each other, forming but one, no part of the enamel being left over either of the cavities that had been filled, but the sides, labial and lingual of the tooth, standing entire like two parallel walls. The edges across the front and back of the tooth were filed smooth, and the corners slightly rounded. After the cavity was properly prepared, the gold was first introduced on the front and back parts of the tooth, which had been filed with tin, forcing it towards the gum and sides of the cavity, until it was filled, on each side, up as high as the bottom of the central cavity, over the pulp of the tooth, and allowing the gold to stand out,—beyond the edges of the cavity. When this was done, rolls of gold containing from a quarter to a sixteenth of a sheet of No. 6, foil and almost half an inch in length were laid in and packed against the remaining walls of the cavity, each end extending beyond the tooth, until it was filled, and the gold condensed upon the top of the tooth, when the sides were found to sustain all the pressure which could be put upon them, up to where they were rounded over at the top of the tooth. This was the only molar tooth which the patient had to eat upon in the lower jaw, and of course it was of great importance to preserve it, if only for a few years. Little short of six leaves of No. 6 foil were put into this cavity.—Time of operation three hours."

July 10th, 1846.

This is a very brief and imperfect description of the operation; but we can state that the filling was as solid as we could make it and that it stood well and preserved a smooth surface as long as the tooth remained unchanged. The sides of the cavity were frail, being composed mainly of enamel at the top, and the secretions of the mouth were of that character that the teeth were slowly discolored under their influence. From this cause and from hard mastication, all his eating being done with this tooth, the edges of the cavity slowly gave way and about two years after, a portion of the gold was broken off leaving a hard rough surface. Several months after this happened the patient called again and on examination we discovered that decay was going on where the enamel had broken away and endangering the whole filling. Under these circumstances we decided to remove the gold and substitute amalgam.

The tooth was re-filled with amalgam Dec. 6th, 1848, more than four

years and a half since, being about double the length of time that the gold filling stood, and although another large amalgam filling has since been put in upon the labial surface, it is still as perfectly sound around the first filling as it was when the amalgam was first put in and still performs all the mastication done by the lower jaw.

It may be said by the opponents of amalgam that this case proves nothing, inasmuch as the tooth may not have been properly filled, with gold, and if it were, it is unfair to draw general conclusions from a single case—be it so.

We can only reply that it was done as well as we knew how to do it, and that it is only introduced here as a sample of many similar cases where gold fillings put in by the very best dental operators have failed to preserve teeth as long as they have since been kept from decay by amalgam in the hands of these very "amalgam dentists." We can only judge of the merits of any article, or any operation, by our experience and observation, and judging amalgam by these tests we are constrained to give it the preference over gold, however well put in, for all large cavities in the back part of the mouth.

The following testimony, published in the New York Medical Gazette in 1851, during one of the amalgam controversies, confirms the views which we have long entertained respecting the use and abuse of amalgam.

[The following article is welcomed to our columns, as sustaining us in the views we had occasion to express in a late number, on a subject upon which we ventured the opinion, that there had been a degree of censoriousness among the controversialists wholly uncalled for. The gentlemen who have thus volunteered to respond in pacific terms, to our peace-making effort, are entitled to our thanks. And we cannot forbear assuring those who do not know them, that they are men who enjoy an exalted reputation in this city as Dental Surgeons, to which they are entitled by education, experience and skill in their profession. We doubt whether ten members of the Dental profession can be found in our own, or any other city, the worth of whose testimony will exceed theirs, upon any subject connected with their department. On the abstract question discussed, we presume not to be an umpire. Ed]

New-York, March 8, 1851.

DR. D. M. REESE,

Dear Sir,—We are pleased to see, by your interesting Journal, that you sympathize to some extent with your "friends the Dentists." Your article in the number for February 15th, in the main coincides with the views which we have entertained for several years, and the principles which we have adopted in our practice in reference to the use of Amalgam, for filling carious teeth.

This article (an Amalgam of Silver,) was first introduced to general notice, in New-York, as a substance for filling teeth, by the Crawcours, about the year 1833, and was by them most shamefully abused. Their fillings were put in without properly cleansing the cavities of carious matter, and frequently over remaining portions of food ; in short, their whole method of practice savored so much of empiricism and fraud, that a criminal prosecution was threatened, if not commenced against them, and they barely escaped from the country with the police at their heels.

It may well be supposed that the operations of such men would produce a strong and decided prejudice in the mind of the public against the use of this material, and accordingly we find that there was but little said about the virtues of Amalgam for filling teeth, for several years. In the mean time, however, many reputable and skilful Dentists were trying experiments with the new material, and carefully watching its effects upon the teeth. For this purpose they generally selected such teeth as were considered of little value, but which their patients were unwilling to have extracted. In most of them the nerves, or pulps, had been destroyed by disease, and the teeth were sources of irritation to the surrounding membranes. The consequence was, in many cases, that, after a few months, inflammation set in, accompanied by soreness of the teeth, tumefaction of the gums and adjoining parts, and often terminated in ulceration. These symptoms, arising from the condition of the teeth, and not from the nature of the material used in filling them, and which would have arisen if gold or any other material had been used instead of Amalgam, have often been attributed to its "poisonous" or mercurial effect upon the system. So strong is the affinity, however, between the mercury and silver in this compound, that we doubt whether even the worst Amalgam can be decomposed, by the fluids of the mouth or stomach, in sufficient quantity to produce any mercurial effect upon the mouth or general system.

After many years of careful experiment with Amalgam, during which time it has been considerably improved, we have come to the conclusion that there are cases occurring in the practice of every Dentist, where it is the very best article known, for arresting decay in the teeth, and we are of opinion that its use has now become an established practice with many Dentists, who rank among the best in this city and throughout Europe, for the treatment of those cases where gold cannot be successfully used.

In our opinion you very justly say that "To identify such educated and respectable gentlemen with the Crawcours, or any other pretenders, is as unwise as it is unjust." Very respectfully yours,

John Trenor ; E. Baker ; S. Spooner ; John Lovejoy ; F. H. Clark ; Benjamin Lord ; George E. Hawes ; William Arnold ; Charles C. Allen ; A. Johnson.

NEW TEETH.

S. Wardle & Co., of Cincinnati, have sent us a card of teeth contain-

ing an assortment of gum, plate, molars and bicuspides. These teeth in texture and finish resemble those of Jones, White & Co's. more than those of any other manufacturers that we have seen, and we learn that they are made "under the supervision of Mr. Wm. H. Daniels, late of Philadelphia. These samples contain a variety of shades and forms which Messrs. Wardle & Co. intend to keep a full supply of at their furnishing store in Cincinnati.

We congratulate our western brethren upon having such excellent teeth made among them, and hope that they may be spared the trouble and vexation, which we experienced for many years, in obtaining teeth of the right size and color. For many years Mr. Stockton, of Philadelphia, and Mr. Alcock, of New York, were the only manufacturers whose teeth we could rely on, and so limited were the styles and shades in their assortments that we were frequently compelled to use such as were entirely unfit for the want of better ones.

At length Jones, White & Co. began to supply us, thereby making the assortment greater to select from in our city, though often deficient. Finally, Crofoot & Laird opened an extensive assortment of beautiful teeth, and we learn that another manufacturer will soon introduce to the profession a general assortment of teeth of his own make, which, judging from those that we have seen, will be inferior to none yet exposed for sale in our market. We rejoice at every introduction of new teeth, and are glad of an opportunity to encourage any one who strives to supply the wants of the profession.

DELINQUENTS.—The near approach to the close of another volume of the Recorder compels us again to call upon those of our subscribers who are in arrears for the present and the past volume. To each the sum of indebtedness is small, but to us the aggregate is needed; the gross amount of our receipts thus far being less than the expense of printing. Those who are indebted, therefore, will see the necessity of prompt payment. The next number, containing table of contents, and dentistry at the Crystal Palace, will be withheld until all arrears are paid when it will be forwarded with any other missing numbers in the whole series.

ERRATA.—The readers of the Recorder are requested to make the following corrections in the article on Rhizodontypo—Neurhæmaxis, by S. P. Miller, in the June and July No's. At the commencement, and in the note on page 220, also 237th page (July No.) the diphthong œ in "Neurhæmaxis," should read œ—Neurhæmaxis. On page 214 (June No.) 12th line, insert distention for "destruction." On same page after "carious cavity" insert comma, and small w in "Why." On page 223, last line, strike out "a" before "surgeon." On page 226, third line from bottom, for "discovering," insert discovery. On page 227, 15th line, for "cautiously," insert courteously. On page 246, (July No.) 25th line, strike out "the" before "terms," and on page 249, 5th line, for "share" insert show.

NEW YORK DENTAL RECORDER.

Devoted to the Theory and Practice of

SURGICAL, MEDICAL, AND MECHANICAL DENTISTRY.

VOL. VII.

SEPTEMBER, 1853.

NO. 12.

DAILY JOTTINGS IN THE GOLD BOOK OF A DENTIST.

BY E. TOWNSEND, D. D. S., M. D.

Mr. S. W. C., a young gentleman aged 22 years, applied for relief. Complained of very great soreness in the second, inferior molaris, approximal surface. A young man, who had been in the practice of dental surgery a short time, had attempted to destroy the nerves and had failed. He had once filled the cavity in the tooth, but, the pain becoming unendurable, was obliged to remove the filling. He had filled the crown only. Upon examination, it was found that with a timidity common to young operators, he had not allowed himself sufficient room to do his work thoroughly. After making a free space between the teeth with my cutters, and file, thereby thickening and strengthening the margin of the cavity, I proceeded to probe the fangs, in which I found the exposed, but not insensible membranes, in a very unpleasant and fetid state. After picking out as much as was possible at one sitting, a pledget of cotton saturated with chloride of zinc was introduced and carefully covered with wax. The following day the remaining portions of the membranes sloughed and came away to the end of the fangs, leaving the cavities perfectly dry and clean, and almost free from odor. The soreness in the peridental membrane was somewhat diminished, though still too great to permit the closing of the mouth with comfort. I next made a deep incision in the gum opposite, or as nearly so as possible to the apices of the fangs, and introduced a piece of cotton to act as an issue. This was changed every other day, and the soreness rapidly diminished under this treatment. After two weeks had elapsed from the first call, I determined to fill the fangs, and doing so, passed the gold as far down to the apices as possible, using No. 30, cut into narrow strips. When the fangs were filled to the floor of the main cavity, and the gold well burnished, the patient was dismissed with an appointment four days in advance. When next he called, I found the irritation had not yet subsided, and was induced to

believe it was kept up by the occlusion of the jaws, as the molar which I was endeavoring to save, met its antagonist fairly and flatly. Having a tooth to fill in the end of the crown on the opposite side of the mouth, I decided to fill this with gold in such way as to prevent the mouth from closing, which was effected by raising the gold above the surface of the crown, and thus entirely preventing the affected tooth from touching its antagonist. In ten days I had the satisfaction of finding the soreness entirely removed, and also of filling the crown cavity in the firmest manner : I then trimmed away the filling which had been used to prevent close occlusion of the jaws, and have since had the satisfaction to know there has been no soreness or other uncomfortable feeling in the tooth—it is as useful as any other, and the gum and all its surroundings in perfectly healthy condition.

Mr. J. consulted me on behalf of his wife, who had been suffering from the filling of a tooth. She was seven months advanced in gestation, had felt some pain in the right superior molar, and her dental adviser, after examining her mouth, informed her he would not put in anything to save her the pain of the extirpation of the nerve ; if he took the nerve out, or in other words destroyed it, he should crush it in with an instrument, but he thought he could fill over it, and around it, so that it would do very well. Though it might give her pain for a while, it would pass off after an abscess should form, and he had no doubt the tooth would do in that way as well as any other. The lady being very sensitive and nervous, said she could not then submit to have the nerve crushed in, or cut, and must therefore have it filled over the exposed nerve. This was accordingly done, and, as far as I could judge from her representation, without any particular care to prevent a somewhat too forcible pressure on the inflamed vessels. The pain increased in violence from the time the tooth was filled, and when her husband called upon me, in reply to my remark, "They should consult with the dentist who had filled it, as he was a man who held high rank," said he had done so and the answer was, "She must bear it until an abscess forms, and then it will get well of itself." I called to see the lady at her house, as she was not able to come to me at once, owing to her suffering and loss of rest. Upon questioning her closely I found the irritation had so fully reported itself in distant organs that she had felt uterine pains, which she feared might produce some trouble, and I had also some fear that premature parturition might be the consequence of protracted suffering. Examining the tooth I found it sore to the

slightest pressure, and an evident engorgement of the blood-vessels in the neighborhood. After removing the filling, which was tolerably solid, I used a broad-edged cutter and removed the thin carious portion of bone over the nerve canal, with one quick cut, and a profuse flow of bloody serum, and almost immediate relief from pain was the result.

The tooth was left open to free itself until the following day, when the pain having entirely subsided, and the soreness of the external membranes very much lessened, a probe was passed into the fangs to ascertain the exact state of feeling of the nerve. This was found to have some vitality about half way up the palatal fang, without removing any even of the outer dead portions of the pulp, arsenious acid and kreosote were placed in the cavity, and carefully sealed over with wax. The reasons for leaving the portions of the pulp already dead, untouched, are two; in the first place, removing them until you reach the living portion, excites some flow of blood which renders it more difficult to make the acid act as perfectly as we wish, and second, this dead portion is a good conductor of the arsenic to the living, without the danger of producing pain by pressure in the application. After leaving the preparation in the cavity twenty-four hours, removed it, and found the hair-like probe could be passed to the apex of the fang without pain, and therefore extirpated the pulp from the palatal root entire, the buccal roots being very small were removed with more labor and difficulty. The external cavity was then filled with cotton, loosely, so as to keep out foreign matter, but not prevent the free flow of serum from the fangs into the cotton. Three days after, finding the tooth free from soreness, pain or other unfavorable symptoms, and that the nerve cavities were dry and clean, I filled the fangs, and on the following day the crown, and have since been gratified to know that the tooth has been in all respects as useful and comfortable as before it was attacked by caries.

The advantage derived from filling the first permanent molars has been very clearly proven to me in the teeth of Miss C., even when, as in her case, from early and incipient caries they are very tender, and are almost certain to be entirely lost by the eighth or ninth year. At the time the two inferior and two superior molars were filled she was seven years old, the two latter teeth just through the gum, the bony structure was soft and exceedingly tender. They were filled with great difficulty at the time, as she was very timid, and it was utterly impossible entirely to remove the softened portions; indeed it had so little density

that it was difficult to decide the exact line between the sound and carious portions. The fillings, which were of gold, were however placed in cavities dry, and as solid as possible under the circumstances, and an injunction strongly urged that the parents would attend to re-filling them from her fourteenth to sixteenth year. I expressed a hope to her and the parents, by that time the bony structure would have acquired solidity, and it would then be possible to re-fill them thoroughly and without pain. The result has proved my anticipations correct, it has also proved that they would in her case have been a great loss as her teeth are not crowded; indeed, there is a space between all of them, and the loss of these teeth at that age would inevitably have brought the bicuspids through the gum at a distance from each other almost sufficient for a tooth between them. She is now seventeen, and the teeth have been firmly re-filled, and without pain, the bone had become hard, and the portions once soft being perfectly protected, even by the fillings done under such disadvantages, had acquired such hardness that little scraping was necessary to prepare them for a more solid and durable filling. They are likely to last as well as any of her teeth, even those which have not been attacked by caries.

The dependance of one branch of the healing art upon the others is very often evidenced, and should lead every practicing dentist to study well all the collateral branches or sciences that can in any way, directly or otherwise, bear upon his own. As he cultivates the general study of medicine, and is known to possess other knowledge besides the mechanical manipulations of his art, he will be recognized as a man of general science, and be called into consultation with the general surgeon and physician, for that special knowledge which he is expected to have. The oculist can often be very much assisted by the dentist in his efforts to relieve the diseases of the eye, particularly those which seem to arise from nervous irritation; sometimes this irritation reports itself by an intolerance of light, as in a case which has recently fallen under my own notice, and in which the oculist desired consultation. The patient, a young gentleman of 19 1-2 or 20, has been unable for the past year to open his eyes upon the day light, and even in the evening going out with a thick shade over his eyes, a kind of a close fitting pad. He had never had any pain or uneasiness in his teeth, and prior to coming to the city for advice, his father wrote to the gentleman under whose care he has placed himself, whose reply was, "first have his teeth carefully examined," to which the attending physician replied, "no need to look

at his teeth, they have nothing to do with it." An examination of his mouth proved to me that freedom from caries, his teeth were perfect, there was some tartar about the necks, and the gums were a little inflamed from this cause, but not sufficiently to give me any reason to hope it could lead to a solution of the mystery. An appointment was made however to scale these teeth, and make further examinations. In conversation at this sitting, I learned that the commencement of the intolerance of light had been coincident with the eruption of the wisdom teeth, and that it had been increasing in intensity as the teeth advanced. On sounding the teeth very carefully, and sounding all the other molar teeth, and then comparing the differences of sound, I inferred that the fangs of these wisdom teeth were yet in a state of formation, and, as his development had evidently outdone the capability of his system of formation in a perfect way, and a general feebleness of tone was thereby induced. I believed it to be barely possible the irritation was caused by the effort of the formative process in these teeth, and that it was acting on some of the associate branches of the ophthalmic nerve: one word as to my associate manner of sounding these teeth, so that the truest resonance should be carried to my ear. I place one end of a bar of steel upon the tooth and the other in my own mouth, grasping it with my teeth, then strike upon the tooth with a sound, and I have it perfectly. I determined to extract the two superior wisdom teeth, and when I had done so, found they each had four distinct fangs, well defined, wanting about a line of their finish, and an appearance of greater than healthy vascularity in the unossified portion of the apices. I congratulated the son and the father, and told them I hoped to hear he was better before many days. One week afterwards I called to see him, and found him very much improved, in a fortnight he walked out at twilight without his pads, and one day when it was cloudy went out to take the air, but while out the sun broke through, and pained him so much that for some days he was again thrown into the dark room, with increase of the symptoms. Since that time, however, he has been gradually and surely, though slowly, recovering.

A lady called who had been under the care of her attending physician for neuralgia of the side of the head, neck and chest, indeed all of the right side was severely afflicted, and a partial disability of motion of the arm. He had been treating her on the best and most approved principles of the practice of medicine, and after failing to produce any good effect, said to her, "get into my carriage and come with me, there

may be something the matter with your teeth?" "Oh no, my teeth never hurt me, besides they were all put in order about two months before this attack." "No matter, come." On learning the symptoms, which were told me by herself very clearly, I suspected some tooth had been the whole cause of the trouble. She informed me, in conclusion, she had been more free for a day or two than usual, but very much feared she should be a victim to neuralgia all her life if she even escaped paralysis. A close inspection of her teeth proved to me that the inferior molar in the left side was the exciting cause of the malady, and this brought its history. Her dentist was cruelly kind, the tooth was slightly carious and needed a small filling in the buccal surface; finding it a little tender, he said "oh we will soon fix that," put in some arsenious acid, covered it over, left it three days, then removed it, and immediately filled the tooth, admiring himself for being so painless an operator. The tooth was white, the gum and surrounding parts healthy, but when I pressed it in one direction, a thrill of pain was the consequence, removed the filling, which was very easy, and drilled through a thick plate of dead insensible bone to reach the pulp cavity, when I reached this, a gush of pus of the most fetid character followed the withdrawal of the drill, and in a few minutes entire relief from the pain which had been caused by my pressure. This cavity was enlarged so as to give free vent to the secretion, the pus became more and more healthy, and in two weeks, I filled the fangs, and two days after the external cavity, the neuralgic and paralytic symptoms all having disappeared. She has since had perfect health, and I have had occasion to fill other of her teeth, some of which had the tenderness so common to dentine, but she always said "cut away, dont put any more stuff in to save a temporary pain."

One word here of this practice—it may sometimes be admissible, but it must always be used with much caution, for, if it is put into the tooth under the surface of the enamel, the capillary tubes carry it into the nerve and it destroys the vitality in the worst way. When it is found absolutely indispensable, it should be kept in only a few hours, and even this must be varied to suit the different density of teeth, and after its removal, and the cavity is carefully washed with warm water, the whole interior surface should be scraped, taking care not to leave any part untouched until, if possible, you reproduce at least some of the tenderness; by this you have proved that your instrument has reached dentine healthy and unaltered by the acid. In such case you *may* be

successful, but even here I would not say be very sanguine, for sometimes, months after, the tooth will lose color and vitality, and you may be mortified to find you have failed.—*American Journal.*

THE REPLACEMENT OF TEETH.

BY C. F. CUSHMAN, D. D.

In the January No. of the *Journal*, I gave some illustrations of the practice of *replacement of luxated teeth*—a subject which, I doubted not, would be regarded as *heretical* by many; by some as too *antiquated* a practice for this modern and progressive age, if nothing worse. As such, and all those who have witnessed only unfavorable cases, or none at all, I presume were fully disposed to reject it entirely.

“But, believing that the true mission of “the healing art” is to *assist*, rather than supplant nature, I am willing to accept truth wherever I find it; and am, therefore, practically “eclectic.”

I have now to add another case, eminently showing the practical advantage of replacing a luxated tooth.

CASE 3. Miss M., aet. about twenty-five, temperament sanguino-lymphatic, health robust, denture regular and symmetrical; applied to a dentist four years previous to her visiting me, and requested him to extract the second bicuspid, right side, of the inferior jaw, it being diseased and painful.

He made six trials at it—“I tell the tale as ‘twas told me”—and on the *seventh*, (there wasn’t “luck in odd numbers” here!) by some strange fatuity, or unaccountable carelessness—for it was daytime, he seized hold of the *first bicuspid*, which was perfectly sound, and extracted it!

The ejection was complete, for she had the tooth in her hand during some two minutes; when learning the *mistake*, she ordered it *replaced*, and declined having the other out.*

She closed her jaws firmly upon it and drove it *home*, her superior denture being perfect. With no other means of retaining it in place, she repeated this movement, frequently, for several days. During the first three or four subsequently, it was very sore; for a whole week it gave *some* annoyance; but after that period very little, if any.

* It was extracted afterwards.

Up to the present time, now four years gone, it has never given rise to any abscess, or discharge of the gum. It is now quite as firm as any tooth—the gum looks pale and perfectly healthy—the color of the tooth (her teeth are very beautiful) is as *lively* as its neighbors—indeed, on close scrutiny, it is difficult to believe that it has ever been dislocated, since ocular evidence thereof is wanting, if we except a slight opaque spot on the labial surface of the enamel, at the neck. That spot is the mark of the extracting instrument, the pressure of which disintegrated the crystalline structure, and is itself a corroboration of the patient's statement of these remarkable facts.

Now, with such evidence of the practicability and success of replacing luxated teeth, I feel it to be the duty of every practitioner to make all reasonable efforts to *save* such as may come under his care—notwithstanding this peculiar practice may be denounced as *unscientific*, and the opinion be concurred in by patients themselves, too few of whom justly appreciate their natural endowments.

DON QUIXOTE did not exaggerate when he said "a diamond is not so precious as a tooth," and it was those of *nature's* gift whose loss he was bewailing. As to practice, that which is natural is scientific.

I have never seen, nor expect to see, the product of art, which as a dental substitute could approach beyond a remote degree towards the perfection of utility, comfort and beauty which this *replaced* tooth exhibits; and doubtless will continue to do for many years in the future.—*Ibid.*

June, 1853.

AN EXTRAORDINARY CASE OF HEMORRHAGE.

BY T. C. HARRIS, Esq., London.

A few years since I was sent for by two medical gentlemen, who had been trying to stop hemorrhage caused by the bungling extraction of a superior molar tooth; upon inquiry of them what course had been pursued, I was informed that several attempts had been made to divide the artery, but as the blood flowed so copiously this was entirely abandoned, as during the operation the lady was almost suffocated. Nitrates of silver had also been applied two or three times, but previously the benzoin and mastic were used, both together and separately, all appeared to no purpose.

I immediately ordered some ice to be sent for, and to be kept con-

tinually applied in the mouth, to give me time to prepare an apparatus to effectually stop the bleeding. I took the model of the mouth in the usual way for making artificial teeth, struck up a large silver plate, sufficiently broad to cover the bruised part with a cavity, put on two hard gold clasps, one to the bicuspid the other to the second molar, with a pin in the centre to secure a piece of cork, which was cut to fit the inferior maxillary, as the patient had lost some of her under molar teeth, so as to cause some additional pressure to the plate when in the mouth. From the time I first saw the lady to the completion of this plate was nearly three hours, having cautioned them before I left not to expect me in less time. Now all was ready, I took with me my stopping instruments, and commenced filling the cavity with cotton dipped in the benzoin, then closed the clasps, put the plate in her mouth, recommending her at the same time to keep her jaws clenched for about half an hour, after which she might remove the cork which was only temporary; in less than five minutes the hemorrhage entirely ceased, much to the satisfaction of the lady's family and medical attendants.

I must say, that during the whole course of my practice, which is about twenty-five years, I have never met with a more formidable case. I saw the patient on the following day, removed the plate, and left her quite well.—*Ibid.*

AN EXOSTOSIS ON THE ROOT OF THE FIRST LEFT LOWER MOLAR.

BY EDWIN KREENELE, Hyde Park, London.

The following case of lengthened suffering produced by an exostosis on the root of the first left lower molar, came under my notice during the last summer. Since the extraction of the tooth, the gentleman has been quite free from pain in the mouth and inflammation of the eye.

When ordering leeches, I did not suspect the presence of an exostosis, but thought the pain to arise from inflammation of the periosteum of the socket.

CASE.—J. M., a gentleman of twenty-five, consulted me for a pain in the face, arising from the first inferior molar of the left side. Upon examination, the tooth appeared slightly loose with considerable inflammation of the gum. I, therefore, objected to extract, but ordered leeches to the part, and a saline aperient at night. The following day

he called again with the determination of having the tooth out. Having neglected the advice of the previous day, in consequence of a great dislike to leeches, he had not been free from pain for an hour.

Considerable resistance was offered to the removal of the tooth, but the cause was speedily made apparent, a small exostosis on the points of the roots. Immediate relief was obtained, which was permanent.

The history of this case is instructive. This tooth, together with several others, had been stopped some six years previously. On removing the carious bone of this one, the membrane of the pulp cavity was exposed. The filling was consequently delayed until the membrane exposed could be caused to shrink away. For this purpose the strong spirit of camphor was used, and with complete success. Before the insertion of cement with which the tooth was filled, the opening into the pulp cavity was covered with a gold cap. The tooth now became quite useful, and for two or three years no uneasiness was ever experienced in it, after this period, however, when exposed to wet or other causes of cold, a grumbling pain was felt, and the gum more or less inflamed; when the symptoms were severe the gum was lanced, which generally afforded relief for the time. After about four years, after one of these attacks, the eyes became inflamed, especially the left, which continued so greatly to annoy him as to compel an entire cessation from business. His surgeon not knowing of the irritation of this tooth, treated the inflammation locally and constitutionally, but with very uncertain success, as he was still suffering from it when he called upon me; in addition to this, an abscess had formed, about four months before I saw him, in the lower third of the neck on the left side. The surgeon searched for a cause of irritation in vain, he suspected one of the teeth, but as his patient could see no connection between them and his eyes and neck, he did not tell him that occasionally he suffered in one that had been stopped, and as all that had been diseased were carefully stopped, he could not condemn any particular tooth. At last a change of air was ordered, and a trip to the continent was taken, and it was during this trip that, from exposure to wet, a severe cold was caught, which brought on a violent pain in this tooth, together with an aggravation of the inflammation of the eyes, which resulted in its extraction on his visit to London on his road home to the west.

Immediately after the extraction of the tooth the pain in the face ceased, the inflammation of the eyes became less, and abscess began to

heal. In a short time he was, and has since continued, perfectly free from his disagreeable and painful companions.

A question naturally arises from this case; ought teeth to be filled after a part of the membrane has been exposed through decay, even when that part has, by the application of a tincture, been caused to shrink away so as to allow of the tooth's being stopped without giving the least pain in so doing?

In this case this treatment had been adopted; this result is before you, what should be the inference? or should one case in which such a train of evils followed, be allowed to greatly influence us? I have my own opinion on the point, and I think it one that merits the consideration of dentists.—*Ibid.*

PROCEEDINGS OF THE AMERICAN SOCIETY OF DENTAL SURGEONS.

(The late appearance of this No. of the Recorder enables us to give our readers a report of the proceedings of the fourteenth annual meeting, held at West Point, August 2d, 3d, and 4th, 1853, from the October number of the Dental News Letter.)

The meeting was called to order at 9 o'clock, A. M., by the President, Dr. Eleazer Parmly, of New York. Minutes of the previous meeting were read and approved, after which adjourned over till next morning.

Second morning.—A pretty full attendance of members. Dr. E. Townsend offered the customary resolution, that all members of the profession present, be, and they are hereby invited to attend the sittings of the Society, which was unanimously adopted, and a committee appointed to carry out the spirit of the resolution, by waiting upon all who were in the house.

Treasurer's report read, and a committee to audit, were appointed. who reported all correct.

Committee on microscopic observations reported progress, and were continued.

Committee on Foreign Dental Literature—no report. Committee continued.

Dr. Townsend now read an Essay on "Dental Patents." The subject was ably handled, and the contrast between *Copy-right* and *Patent*, strongly drawn.

Report of Committee on revised Constitution was now made by Chairman, Dr. J. D. White, and the constitution read, which was received, and committee discharged, and on motion the Constitution was taken up section by section for amendment, revision or adoption, and the whole was adopted as reported, with but slight amendments. The By-Laws, next came under consideration, and the article on Dental Ethics, which reads as follows, elicited some considerable discussion, after which it was adopted.

"ARTICLE XIII.—DENTAL ETHICS.—Any dentist who shall procure a patent for a remedy or instrument of Dental Surgery, or who deals in patent remedies or nostrums, shall be disqualified for membership."

The rules of order were now read, and with some slight amendment adopted,

On motion, a committee was appointed to print the revised Constitution and By-Laws. Committee, Drs. J. D. White and E. Townsend.

On motion, adjourned to meet at Cozzens' Hotel at 4½ o'clock, P. M.

Afternoon session.—Dr. Dunning brought to the notice of the Society a circular pamphlet, evidently designed for a strong advertisement, which, on a call from the Society, was read. The reason why the pamphlet was noticed at all was to take some action on the manner in which the author makes public his connection with the Society, which was deemed highly disrespectful and unwarranted, and demanding some action by way of rebuke. It was laid over for the present.

The committee appointed at previous meeting to confer with Dr. C. A. Harris in reference to bill for printing the tabular sheet, reported. A letter from Dr. Harris to the President, on the same subject, was also read. On motion of Dr. Dunning, the action of the committee was endorsed, and committee discharged.

Dr. E. Parmly offered the following resolution, which was carried:—

Resolved, Therefore, that the matter of Mr. Wood's bill be laid over until such time as Dr. Harris shall be present, and give to the Society such explanation as he may have to offer touching the matter, when every member of the Society will feel pleased in acting in his behalf according to the testimony he may adduce.

On motion of Dr. J. D. White, seconded by Dr. Dunning, the following resolution was adopted as a *By-Law* of the Association:—

Resolved, that any member of this Society who shall extol his own peculiar merits over a fellow practitioner in the public prints, or employ means of advertisement which may be regarded by this Society as low-

ering its dignity or compromising its character, shall be impeached, suspended or expelled.

Third day, morning Session, August 4th.—After some preliminary business and corrections to previous day's minutes,

Dr. A. C. Hawes inquired whether the 13th article of By-Laws affected a member using a patent instrument; it was decided that it did not.

Dr. Goddard moved the appointment of a committee to take into consideration the misunderstanding which had occurred between Dr. Harris and the Society's committee on tabular sheet, which committee reported a resolution condemnatory of the course of Dr. H. in the transaction.

On motion, the Secretary was authorised to transmit to Dr. Thomas Palmer a copy of the Constitution and By-Laws.

The Society now went into an election for officers in the following order:—

Examining Committee.—Drs. J. D. White, C. C. Williams, E. Townsend, A. C. Hawes, Joshua Tucker.

President.—Dr. E. Townsend.

Vice-Presidents.—Drs. J. Tucker, J. H. Foster, and Goddard.

Corresponding and Recording Secretary.—Dr. D. R. Parmly.

Treasurer.—Dr. E. J. Dunning.

Librarian.—Dr. D. R. Parmly.

Publishing Committee.—Drs. J. D. White, D. R. Parmly, and E. Townsend.

Committee on Inventions and Improvements.—Drs. E. G. Tucker, J. Parmly, and J. D. White.

The following were appointed to deliver Essays at next meeting:—Drs. Robertson, A. C. Hawes, A. Westcott; C. C. Williams, and E. G. Tucker, and Dr. J. Patmly to deliver the opening address.

Place of Meeting.—It was decided that the next Annual Meeting be held at Cincinnati, Ohio, on the First Tuesday in August, 1854.

A vote of thanks was returned to Dr. E. Townsend for his very able address; and a similar vote to Dr. E. Parmly, for the courteous manner in which he had presided; also, a similar vote to the Messrs. Cozzens (the proprietors of the hotel,) for the very obliging and accommodating spirit which they had manifested towards the Association.

Dr. S. P. Miller presented a pathological specimen involving the loss

of five teeth, caused by treatment of the pulp ; after which the Doctor gave a history of his first treatment of pulp by drilling.

Adjourned to 4½ o'clock.

Afternoon Session.—As soon as organized, the following gentlemen were unanimously elected members :—Dwight Tracy, M. D., D. D. S., Willimantic, Ct. ; J. S. Clark, D. D. S., New Orleans, La. ; Francis Field, Dentist, Waltham, Mass. ; R. P. Berry, Newport, Rhode Island.

After which the Society adjourned to meet at Cincinnati, Ohio, first Tuesday in August, 1854.

This meeting was well attended, and the utmost harmony and good feeling prevailed ; indeed we never attended a more pleasant or agreeable meeting of the profession.

We were much pleased to see Philadelphia so well represented, both in membership and visitors, proving, as it does, the interest felt in the advancement of the character and interests of the profession. Our Philadelphia folks are not lacking in *esprit du corps*.

An error as to the time of meeting occurred in the published proceedings of the previous meeting of this Society, by which some of its members and others were led astray, among whom, we regret, was Dr. T. W. Evans, of Paris, who arranged his visit to this country with a view of attending this meeting, having a matter of some importance to bring before the Society, viz., the regulation of teeth. (It will, however be given in our pages hereafter.) The error was in stating that the next meeting would be held on the *second* Tuesday in August 1853, when it should have been the *first* Tuesday.

Although present at the previous meeting, with a view of obtaining minutes of the proceedings, yet on finding Dr. Hill, of the "Dental Recorder," engaged at the same work, we deemed one sufficient, and depended upon his report as published in the "Recorder" for August, 1852, from which we copied them. The error, therefore,—which was purely an oversight on his part—is not chargeable to us, although we should have noticed and corrected it.

J. R. McCURDY.

PROCEEDINGS OF THE SOCIETY OF DENTAL SURGEONS OF THE STATE OF NEW YORK.

This Society held its Annual meeting at No. 59 Bond street on Tuesday Sept. 13th, 1853.

The meeting was called to order by the President at 4 o'clock, P. M..

when the minutes of the last annual meeting were read and approved. The opening address was then called for, but neither of the members who were appointed being present, both were excused. Dr. Chase on account of domestic afflictions, and Dr. Bridges for good and sufficient reasons.

The Librarian made his report which was accepted.

A vote of thanks was tendered to Dr. Rahn for beautiful specimens of artificial work. After discussing various topics, the Society adjourned to meet at the residence of Dr. H. Burdell, at half past seven o'clock.

EVENING SESSION.—The meeting was called to order by the President, at half-past seven o'clock.

On motion of Dr. Covell it was proposed to offer to Dr. Charles Rahn the recommendation of the Society, for his use in Europe where he intends to reside.

The report of Dr. Main, chairman of the executive committee was accepted and ordered to be placed on file.

A long standing account between Dr. Burras and the Society was settled by a vote of the Society, and also the account with the Protestant Episcopal Mutual Benificial Society.

The Treasurer's report was accepted and ordered to be given to the executive committee to be audited.

Dr. Covell offered the following resolution.

"Resolved, That the Secretary of the Society be instructed to give to its members a receipt for annual dues upon the payment of one dollar, and giving a promissory note for two dollars payable at the next annual meeting, unless the Society shall resolve to return their maker all such note."

The object of this vote was to reduce at a future meeting the annual dues to one dollar.

The following officers were then elected.

President, Martin K. Bridges; 1st Vice President, Benjamin Lord; 2nd do., A. Johnson; Recording Secretary, Lemuel Covell; Corresponding Secretary, Charles C. Allen; Treasurer, Benj. F. Maguire; Librarian, E. F. Arnoux.

NEW YORK EXHIBITION OF THE INDUSTRY OF ALL NATIONS.

We have taken some pains to examine the specimens of Dental Operations and Dental Mechanics now on exhibition at the "World's Fair" in New York. We find in the catalogue about twenty-two

cases, (including dental instruments,) in the United States department, and one from England, but after making diligent search for them, during several visits, there are still some which we have not been able to find. Most of those that we have seen were made for show and not for service in the mouth, and, of course are not fair specimens of the kind of workmanship executed by the exhibitors for their patients and customers. Very little good can result from exhibitions of this kind, unless to the pockets of the exhibitors, and we should think that this method of advertising had been practised in the fairs of the American Institute and other similar exhibitions too often to pay. If the expert and skillful members of our profession would unite their efforts and make an exhibition of dental mechanics and operations which had been constructed for service in the mouths of their patrons and patients; such, for instance, as gold plates and palates which had been worn in the mouth, gold fillings which had seen some years service before the teeth were extracted, apparatus for regulating teeth, with models taken before and after its application, instruments of practical utility, and such other workmanship as is practical and useful, we can understand how such an exhibition would raise the standard of dental mechanics, and redound greatly to the advantage of the public and the profession.

But we have seen enough of *show pieces*, galvanised silver or copper plates, fitted to carved models, gold fillings put in while the teeth were securely screwed into a bench-vice, and finished with a buff or brush wheel, with rouge and buckskin, may be pleasing to the eye of the uninitiated, and serve to draw some cheap customer to the office of the dentist, after the exhibition has closed, but they can never raise the standard of genuine dental operations, nor elevate the calling of the Dental Surgeon in the estimation of sensible and discerning men. We regret to say that there are too many cases of this kind on *show* at the great exhibition of the industry of all nations; but we will proceed to notice such as we have seen, and leave those of our readers who have not had an opportunity to witness the specimens themselves, to judge of the correctness of our views.

ROBERT A. PORTER, of Philadelphia, exhibits a number of tolerably good blocks. The principal feature in them is the imitation of carious spots in the teeth. In some of them there are poor gold fillings; but it is difficult to put good ones into smooth glazed cavities in mineral teeth. This case also contains two silver plates with teeth mounted on them; one is an ordinary clasp piece, and the other is a cavity plate

for a partial set. There is nothing remarkably good in the case, though the whole is fair.

S. BROWN, New York, has a small case, exhibiting Stockton's teeth, and "Reynolds Dental Detergent." The assortment of teeth in this case is small, and it illustrates the saying, that, "When a man's name is up he may lay in bed 'til noon."

JONES, WHITE & McCURDY, of Philadelphia and New York, have a large assortment of their teeth there, embracing gum, pivot and plain plate teeth; they are neatly arranged, and so as to show the peculiar qualities of their teeth to advantage. There are also in this case specimens of corundum wheels, slabs and files, Morson's beautiful forceps, and Dr. L. S. Parmly's apparatus for cleaning the teeth, and various dental articles from their furnishing stores.

WARREN ROWELL exhibits a duplicate specimen of palate plate, containing artificial teeth, which was "invented and constructed by himself," and has been worn since 1841. A description of this ingenious piece of mechanism can be found in Harris' Dental Surgery.

CHARLES F. MERMIER, exhibits a small case intended to show the various steps in the construction of a set of artificial teeth, from the taking of the impression to the finishing. The wax impression is shown, the metallic casting, the plate, the blocks, in biscuit and after burning; but the whole are mixed up together, and without any description, so that a novice can hardly understand what the exhibitor intends to show. The blocks are tolerably good.

DOCTORS CHAPMAN, of New York. These gentlemen exhibit principally block work, neatly and ingeniously arranged in a beautiful case. The principal feature in it consists of a double set having a movable lower casting, to show the antagonising of the teeth. By a simple contrivance, the teeth are made to open and shut. The direction on the case being to "turn the silver knob, and notice the closing of the teeth, and then raise the wooden one and *take our card*." This set is very well made, but the blocks would be improved by giving more translucency to the teeth. The gum is also, either too deeply colored or too bricky, and they have not been quite careful enough in joining their blocks.

AMBLER & AVERY, of New York. Most of the specimens in this case have been exhibited at the fair of the American Institute, where the exhibitors obtained a gold medal; some of them were also in the Crystal Palace at London. There is some excellent workmanship in this case; among the pieces we recognised one, made by Avery, consisting

of two lateral incisors, on a cavity plate which we saw worn in the mouth, and then pronounced a beautiful piece of workmanship. In this case, there are also several fancy pieces of gold and plate.

JAMES FOWLER, of New York. In this case there are five full upper sets, most, if not all, made for exhibition, and all showing excellent workmanship.

JOHN ALLEN, of Cincinnati. Doctor Allen exhibits specimens of his new style of continuous gums fused upon platina plates, together with some of the old style of plain single teeth upon gold plates, for the purpose of contrasting the two methods. Instead of an ordinary, old fashioned set of teeth, if Dr. Allen had placed by the side of his new style of work a handsome piece of Crofoot's or Potter's blocks, mounted on gold plates, by either of these gentlemen, the contrast would have been much less favorable to the new style, and the exhibition would have been much fairer, as it would have shown the improvements which other dentists have made, as well as those of the exhibitor.

The specimens of "continuous gums" are well executed and show Doctor Allen's improvement to great advantage.

H. B. HALE, of Boston. This case contains an upper set of natural teeth united by a wax base, most of the teeth are filled with gold. As far as we could judge from appearance these teeth were filled after they were extracted, for exhibition. The fillings appeared to be well put in and were handsomely finished. Such work, if done in the mouth, we should pronounce good.

R. T. REYNOLDS, of Philadelphia. This is a case of excellent workmanship, containing one full upper set of blocks, one double set of single gum teeth remarkably well ground together, one upper set of common plate teeth well fitted to the plate, and one clasp case, the clasps embracing the second molars. The last was too heavy for clasps, and should have been made, we think, to be worn by atmospheric pressure; but the workmanship of the whole is admirable.

T. PALMER, of Fitchburgh, Mass. Whether this case is exhibited for the purpose of exciting patriotic feeling in the American people, or advancing the science of humbug, we will not decide. It is one of the largest in the exhibition, and has, perhaps, as little in it to attract the attention of dentists as the smallest case there. It is surmounted by the American eagle bearing in his beak an upper set of teeth, and flanked by the stars and stripes. There are a number of blocks containing each an entire set, buried in one piece (of course for show); some of them

mounted. Two or three cases of block-work are mounted on galvanized plates, and may be duplicates of cases made for the mouth. There is also a quantity of mouth wash and tooth paste in the case.

BALLARD & KINGSLEY, of New York. This is the only case of real practical work which we saw in the exhibition; most of the cases having been worn for months, and loaned by the owners for exhibition. There is one piece, which we saw worn in the mouth, in which the teeth are very well colored to represent the dark stains so frequently seen across the upper part of front teeth. Two full upper sets, chamber plates, very well done. One chamber plate, with only the lateral incisors. Another chamber plate contains a block on one side extending from the lateral incisor to the first molar, and made to supply the loss of a large portion of the jaw bone. Several specimens of blocks, not mounted, but duplicates of those now worn in the mouth. Among the fancy pieces in this case, is one showing denuded fangs; very natural. A block representing a crowded denture, is a fine specimen of carving. The dental mechanism in this case, was all constructed by Mr. Kingsley. There are also, several specimens of gold fillings in natural teeth, by Dr. Ballard, which are very beautiful; but done out of the mouth.

The above embraces all the work in dental mechanics, which we were able to find, though several more are put down in the catalogue. In the French department, we noticed several cases of surgical instruments of rare beauty; one in particular, by Luer, surpasses anything of the kind which we ever saw.

EXOSTOSIS.

Some months since, we received from Dr. Perry, of Clinton, Mass., a very remarkable tooth. It was a lower molar. The crown was of the usual form and size, but about the fang was an enlargement resembling somewhat, a collection of salivary calculus, about the size of a hickory nut. On breaking it open, it appeared to be an extra growth of bone of a loose porous nature, radiating from the fang to the circumferents. It separated from the fang quite easily, and seemed to be a growth from the investing membrane. It was readily extracted with a forceps, by Dr. Perry, after two unsuccessful attempts to remove it with the turnkey, by a physician.

We have also in our possession, a very remarkable case of genuine exostosis, or hypertrophy of the cementum, extracted by our friends,

Dr. Hill. It is a lower incisor. The crown is deformed, and the fang measures three eights of an inch in breadth, and about three sixteenths in thickness, and on one side is an enlargement about the size of a pea. This was also extracted without any difficulty, though a portion of the enlarged fang had been denuded of its covering during the last year or two before it was extracted. This case was evidently congenital, though the first related above, was the result of disease.

SPRINGING OF PLATES BEFORE SOLDERING.

This is one of the greatest troubles the mechanical dentist has to contend with, and although much effort has been made to prevent it, and many different plans suggested and described in the dental journals, all admit it, except the few "fortunate souls," as Dr. Taylor calls them, "whose plates never warp, who never have any trouble in any of their operations; their plugs never drop out, they never break a tooth in extracting, and they always make suction plates." A method has been suggested and practiced by Mr. Albert Wilcox, an excellent mechanical dentist in this city, which we do not recollect to have seen in print, and which we are assured is a complete preventive of that form of springing, by far the most common, which results in a contraction of the back part of the plate across the mouth. It consists of nothing more than a strong steel wire slightly curved so as to pass across the convexity of the plate which is fitted to the roof of the mouth, the ends of the wire resting firmly against each side of the back part of the plate within the groove occupied by the gum. This wire is to be embedded in plaster and sand when the teeth and plate are covered.

We have not tried this plan, but it certainly looks feasible, as the simplest and most direct way to prevent two ends from contracting or drawing together, is to place a brace directly between them and not to curve it around them, thereby exposing the ends of the brace to the same liability of springing that the plate is exposed to, as has been recommended by most writers upon the subject. The plan is worth testing.

CORUNDUM WHEELS AND FILES.—We have received from S. Wardle & Co., of Cincinnati, beautiful specimens of the above articles, which are equal to any we have ever used. For sale by them, at No. 256 Walnut street, Cincinnati, Ohio.

Dear Sir :

You will confer a favor by forwarding to Dr. C. C. Allen \$2 the amount of your indebtedness for volumes $\frac{1}{10}$ th of the New York Dental Recorder. If any of your back numbers are missing they will be forwarded free of charge.